

THE IRON AGE

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Spring Steel from Cold-Roll Strip Mills

Frequent Annealing Needed Between Passes—Enlarged Plant of Wallace Barnes Co., with Unique Warehousing Arrangement, Provides Unusual Flexibility

NEW construction and almost a complete rearrangement of units have placed the cold-rolling spring steel mill plant of Wallace Barnes Co., Bristol, Conn., in position where expansion can take place with comparatively little limitation. An addition of 64 ft. to the length of the building was part of the recent extension and it is significant that the end of the building is a temporary wooden wall which may be torn down at any time for further extension. The other walls are of brick, with plenty of glass, and a monitor runs down the center. The building, as remodeled, is

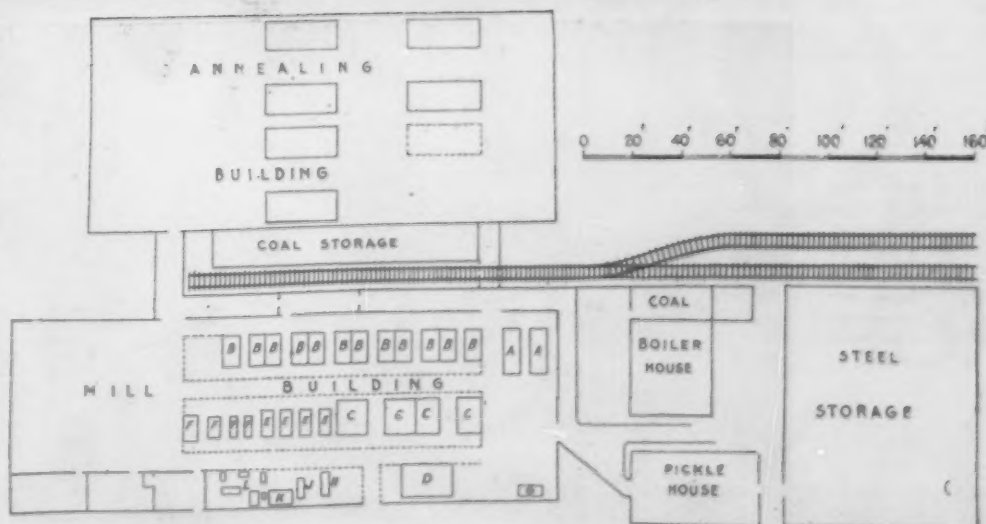
227 ft. long and 80 ft. wide. It forms part of a separate unit which the company maintains at Forestville—two or three miles east of Bristol—in which all of the cold rolling, with attendant operations of annealing, etc., takes place. The plant, located alongside the Pequabuck River, has a railroad siding running in between the mill building and the annealing building, passing the steel storage building and the coal bin of the boiler house on its way.

As indicated in the plan, there are five buildings, of which the rolling mill building is the longest. The



Tempering Train Handling Spring Steel in Continuous Coils. Heat is applied by means of gas flames, several burners in each unit being shown at side. Quenching is in an oil bath, with central pumping for circulating oil and maintaining its constant temperature

Compactness, with Opportunity for Much Expansion, Feature the Layout of the Mill Plant. Vacant land stretching several hundred feet to the left (west) should take care of requirements for many years. A—8-in. mills in tandem; B—8-in. mills; C—10-in. mills; D—12-in. mill; E—slitters; F—slitters (after pickling); G—flattener; H—re-winder; K—roll grinder; L—machine tools



annealing building, 87 x 195 ft., has the greatest width. The steel storage building of 80 x 104 ft. has capacity for 5000 tons of steel. The two other buildings are the boiler house, 33 x 39 ft., and the pickling house, 30 x 53 ft. All buildings are one story high the mill and annealing buildings and boiler house having brick walls. The pickle house is a wooden structure, while the steel storage has a wooden frame with corrugated iron sides.

Layout of Rolling Equipment

As the equipment is now laid out, the mill building contains one 12-in. mill, four 10-in. mills and 16 8-in. mills. Four of the latter, grouped in pairs in the northeast corner of the building, are operated in tandem. All the other mills are operated independently. Additional equipment in this building includes a pickled steel winder, four filers, four slitters, straightening and cutting to length equipment, a flattener and a rewinder, in addition to equipment for taking care of the rolls, including grinder, lathe, shaper, etc. This equipment is arranged, as the plan shows, in three rows, separated by broad aisles. All of the 8-in. mills are in the north row, with the 10-in. mills and the filers and slitters in the center. The rest of the equipment occupies the south row or bay. It is planned at no distant date to install another 12-in. mill just west of the present big mill, which will necessitate moving the roll handling equipment still farther to the west, and some other rearrangements.

The cold-roll sets were all furnished by Blake & Johnson Co., Waterbury. The take-up coilers, as well as the filers, were built by the company, and a good

deal of the equipment purchased outside was remodeled, in part at least, after it had been received by the company.

All material is handled in nearly a straight line, although annealing requirements of high-carbon steel make it necessary to retrace part of the line several times on account of the intermediate annealing to which the steel has to be subjected. The straight line mentioned is from the steel storage, at the east end of the property, through the pickle room, which is served by a single battery of pickling equipment, thence into the mill building, where both aisles are readily accessible from the entrance. The west end of the mill building is used for shipping. For the benefit of that which is shipped by motor truck, a large door in the temporary west end of the building admits the truck under cover.

Spring Steel Exclusively

Practically all of the steel used consists of one or the other of two grades of high-carbon material. The so-called "regular" material is of 0.70 to 0.80 per cent carbon, while the "clock spring" material is ordered as 0.95 to 1.05 per cent carbon. The material comes in in a great variety of widths and gages, depending upon the use to which it is to be put. The company has no products of its own, all of its work being done on contract. At the same time, there is great flexibility in the way the operation is carried on and the use of material to fill definite orders is readily specified. All material goes through the mill with a card attached showing the order on which it is to be applied and the amount under operation. The flexibility of this system



Annealing Oven Control Is by Means of Leeds & Northrup Recording Pyrometers. In background appear a number of the covers for car-type bases. Bucket-shaped pots are used for some of the work

Running Two Cold Roll Mills in Tandem Speeds Production and Saves Intermediate Handling. These are 8-in. mills — the smallest size used in the plant





Surface Polishing Is Done by Running Continuous Coils of Spring Steel Through Boxes of Abrasive Material. Electric drive has displaced the belts since this photograph was taken



General View in the Mill Room, Showing Broad Aisle Marked Out for Handling Materials

will be better appreciated on a reading of later paragraphs relating to the warehousing operations of the company.

Some of the problems which have to be met are common to all rollers of cold-rolled strip. These involve opening the coils sufficiently to permit the pickling compounds to get at all surfaces, rewinding the loose pickled coil after the scale has been removed, winding the material after it has passed through the cold-rolling process, etc. Some of the special problems which have to be met in this case, however, where nothing but high-carbon material (with an occasional small lot of alloy steel specially ordered) is used, include unusual care in assigning the drafts to the mills, because of the character of the material, and unusual care in finishing the edges of the material to the exacting specifications of clock and phonograph makers and other users.

It should be noted that a large proportion of the output consists of clock springs and phonograph springs, finely tempered and colored. To provide the proper edge, a unique filing machine is employed in which the strip is passed through with its edges in contact with a number of stationary files, so set that the material is adequately surfaced by passing between them.

Annealing an Essential Part of the Process

In the annealing building are six coal-fired annealing furnaces of uniform size, measuring 12 x 30 ft. outside. It is planned to install a seventh furnace, this being a part of the 1925 expansion of the company. Two types of annealing pots are used, both with the aid of the usual car bottom, which is run into the furnace on balls located in parallel grooves. In the illustration in the annealing building the long covers fitting a carriage

appear in the background. The other type of pot consists in a bucket-shaped casting in which coils may be laid flat, one on top of the other, and covered over. These buckets are then deposited on a car bottom, each of which will hold three buckets, and shoved into the furnace.

It takes about 24 hr. to bring the steel up to the desired temperature, this slow heating being required by the spring steel. After removal from the furnace the steel is left in the pots sealed for three days before the covers are removed. Control of the furnaces is by means of Leeds & Northrup recording pyrometers as shown.

While the product of the mill consists of about 500,000 lb. of steel per month, it is necessary to pass about 2,500,000 lb. per month through the annealing furnaces, because of the number of intermediate annealing processes required. The drafts on the steel are limited usually to about 20 per cent between anneals, which makes it necessary, when drawing down to half the original thickness, to use three or four intermediate anneals. It is general practice not to give the steel more than two passes between anneals. As most of the orders require from five to eight passes, the duplication of annealing becomes apparent. It is this requirement which makes it necessary to take three or four weeks in passing an order from the rod storage to the shipping platform. This does not involve delays between processes, but covers simply the time necessary to perform the various operations in their natural sequence and to prepare the material for shipment.

A single sample of the method of reduction is shown by an order calling for spring steel 0.042 in. thick to be made out of hot rods 0.083 in. thick, with tolerance limits of 0.041 to 0.043 in. The work order called for reduction after the first annealing from 0.083 in. to

0.065 in. After another annealing, two more passes would reduce the material to 0.050 in., whereupon another annealing was necessary. The final passes, bringing the material to 0.042 in., show a smaller average draft than the first or roughing passes. In fact, the last pass of all customarily takes the lowest draft of all, because of necessity for exact gage and superior finish.

While the bulk of the material, as finished in this way, is used in one or another of the company's plants or shipped to affiliated plants, a considerable amount goes direct to customers who take small or large quantities, depending on special needs.

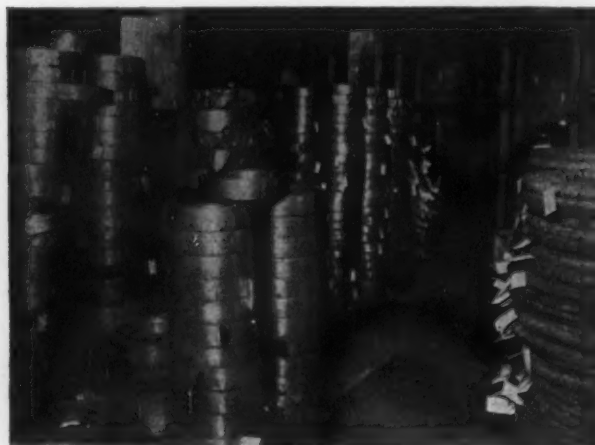
Tempering Done at Main Plant

Most material is shipped annealed, but in some cases the steel is tempered before being shipped. This tempering process takes place in the main plant at Bristol,

pedition. Needless to say this ability to ship almost "by return mail" has held many customers and made new ones.

As an example of the way this works out, a customer recently wanted 210 lb. of a light gage and narrow width spring steel. It happened that 90 lb. of this material lay in the warehouse. The customer was in urgent need of a part of his order, but could wait for the remainder 30 days or more. Shipment was made at once of the 90 lb. from the warehouse and an order for the full 210 lb. was put through the mill. In due course the remaining 120 lb. ordered by the customer was shipped to him and the 90 lb. excess over this amount, which was produced by the mill, was put back into the warehouse and the warehouse stock thus made intact.

Control of the warehouse stock with a perpetual inventory is had by a card system filed in duplicate and



(Above) A Corner of the Warehouse, with Its Stock of Thousands of Items in Small Parcels

(At Left) One End of a Filing Machine for Finishing the Edges of Spring Steel to a Smooth, Rounded Contour

where the tempering is done for the material worked out in that plant for specific orders. Ingenious furnaces have been arranged for tempering straight material in continuous coils, an oil bath being used.

Small pieces or parts to be tempered after forming are handled in pans in small oil-fired furnaces and quenched by being dumped into an oil bath when the desired temperature has been reached. Constant circulation of the oil in these baths is required, this being provided by a pump which handles the entire quantity of oil in all the quenching tanks and provides cool oil with ready control of its temperature. One tempering room contains also furnaces for coloring the material to a blue or a straw, as may be required, and a number of polishing machines for surfacing.

Warehousing of Steel

Something of a unique position is occupied by the company in connection with its warehousing of spring steel. This started from the fact that it has always been customary to put through the shop an order a little larger than that required by the customer's order, so as to be sure to take care of all contingencies. Thus, a customer might order 10,000 lb. of a certain size and the shop order call for 10,500 lb. If nothing happens in the shop causing rejections of any of this material, the 10,000 lb. on the customer's order is shipped to the customer and the 500 lb. surplus put into the warehouse. Accumulation of many tons of spring steel in this manner—steel varying in its widths and gages through a whole gamut of sizes—has put the company in position to furnish small quantities with great ex-

major indexed under the widths. There is a separate card for each width and gage of material, this being charged with all material taken out and tied up with the order number, and credited with all material put into the warehouse, also by order number. This continual tie-up with order number works back through other records to the heat of steel of the company which produced the original hot-rolled strip, purchased by the Wallace Barnes Co. as its raw material. Thus at all times steel may be traced back to its original source in case any reason for such tracing comes up.

When it is realized that an order filled from the mill takes on the average about four weeks to produce and that, without this flexible warehousing system, any company furnishing cold-rolled strip would require a similar four weeks before the first shipment could be made, the advantage of the arrangement here is evident. Emergency orders, while possibly not fillable in full at receipt of telegram, yet can be handled in part in that way, almost without exception.

In some cases some intermediate process has to be done on the material before it can be shipped—particularly is this true of the question of width. Consequently the warehouse has slitting machines which can give the width required on comparatively short notice, and it has also filing machines to give the desired finish to the edge of a strip which has been passed through the slitter. Thus, the fact that the company is continually passing through its own mill quantities of a wide variety of sizes and gages of spring steel for its own uses facilitates its ability to serve customers quickly when special requirements have to be met.

Personnel Management Problems Discussed

Employee Magazines, Factory Lunchrooms, Education, Health Supervision and Grading of Supervisors Among Topics at Management Association Convention

A WEALTH of material for discussion, good attendance at the sessions and free interchange of ideas and practices at the group meetings marked the annual convention of the American Management Association, held at the Hotel Astor, New York, Jan. 28, 29 and 30.

There were 12 separate sessions. The addresses, reports and parts of reports numbered more than 30, and group meetings directly followed the presentation of many of the reports and addresses. These groups discussed the application of the subject matter to office, factory, retail organization, field sales organization, public utility and other fields, respectively. There were 27 group meetings in all, some groups assembling five or six times during the course of the convention. The subjects presented related for the most part to the management of personnel. The papers and reports, some of which are abstracted below, will be available later in printed form.

What to Run in Employee Magazines

The content of personnel periodicals was discussed in a paper on "What Should You Run in Employee Magazines," by Sterling Patterson, editor *Western Electric News*, Western Electric Co., New York.

These publications may take various forms, monthly or weekly magazines, weekly or daily newspapers. They were said to be essentially a part of a personnel program, an undertaking which a company must carry on in an effort to bring about mutual understanding and trust among management, workers and stockholders. That they are not a panacea for labor ills was emphasized.

Many personnel publications, it was stated, seem to lack a definite policy. A mistake commonly made is that the intelligence of the personnel-publication audience is frequently underestimated. It was pointed out that if the audience includes a large number of people who do not read English, it is still quite likely that they will know everything that appears in the magazine. The foreign readers get information from the pictures and through their children who are going to school and can read the magazine when it is taken home. A point of emphasis was that if the periodical does not have a family circulation a great opportunity is being missed.

In discussing the editor, his qualifications and status, it was stated that he should report sufficiently high up in the line to get a broad view of his company and industry. He must be close to those handling relations with employees, but it is desirable that he is not actively engaged in the administration of that work.

What the readers want was summed up in one sentence: "They want to be interested. They want to know everything interesting which the company is doing. They want to know about their friends in the company, and interesting things which people in the company are doing. They want variety, a balanced ration." The jobs, the homes and the pleasures were given as the three main interests around which stories should be built. The best test of the success of a magazine, whether or not it is being read, was said to be the reaction caused if the publication of it is late. Another test is the presence or absence of copies which are left around the shop.

Two common faults of personnel publications were put down, one that they are often hybrid in character and the other that they are frequently dull. Having the publication perform both the function of a magazine and of a newspaper cannot be done successfully.

The newspaper was given as the best single publication. In a number of companies magazines are being supplemented by newspapers. Many publications suffer from a lack of balance and variety, from too frequent mention of officers and from lack of originality in make-up and in writing. There is a vast field to draw upon in hobby stories, and interesting stories may be built up around raw materials which go into the company's product and around interesting uses of the product.

The necessity of having a definite editorial policy with the management sincerely behind it, was emphasized several times in the discussion of Mr. Patterson's paper. Considerable interest was shown as to the cost per employee per year of a personnel magazine. The cost to one large company publishing an eight-page, 9 x 12-in., periodical, with 16,000 copies printed, was given as \$1.25 per man per year, which includes all cost. The cost of another personnel publication of 20 pages, 5½ x 7½-in., was given as varying between 13 and 18 cents per copy per issue.

Lunchrooms Should Grow from Actual Need

At a session devoted to employee lunch rooms a summary of the work of the association's committee was presented by several committee members, each outlining a different phase of the work.

"Reasons for Establishment and Maintenance and Reasons for Abandonment" were summarized by Louise Moore, Dutchess Mfg. Co., Poughkeepsie, N. Y., who said that the establishment of a factory eating place should grow up from an actual need.

F. W. Boswell, manager, personal service department Buick Motor Co., Flint, Mich., in his part of the report dealt with the "Opinions of Lunchrooms Held by Major Executives." The material presented was based on 39 replies to questionnaires and represented a variety of industries, including steel, employing from 25,000 to 500 workers. The employees patronizing the cafeteria was reported as varying from 20 to 100 per cent, averaging 41 per cent. All companies stated that operation was satisfactory, that it made for better morale, and all but three reported that it increased production. One half of those replying to the questionnaire operated the lunchroom or cafeteria on a cost plus basis, the others operating on various other plans. Approximately 65 per cent broke even or better. More than 60 per cent had entertainment during noon hour, from phonograph music to dancing. The majority opinion was that the factory eating place has come to stay.

The cooperation of employees in the organization and management of lunchrooms was outlined by B. R. Miller, personnel director Ingersoll-Rand Co., New York. Where plants are located so that employees can go home for meals or to satisfactory neighboring outside lunchrooms, there is little, if any, need for lunchrooms or cafeterias operated by the company. Good food, good service and reasonable prices, summed up in good management, were given as the factors upon which success or failure depends. Advisory committees of employees for lunchroom affairs were not favored by the majority of the companies answering the committee's questionnaire. Regarding the popularizing of lunchrooms, it was said that good management was the unanimous experience, a good cafeteria being its own advertisement. "We should study needs and devise ways to satisfy them," said Mr. Miller. "We

(Continued on page 451)



Using an Iron Mountain as Its Main Source of Ore, This Company Has Reserves for Decades—Ingot Capacity 550,000 Tons Annually

BY B. F. CASTLE*

SEVEN separate plants, aside from mines, constitute the equipment of the Oesterreichische Alpine-Montangesellschaft. Eight blast furnaces are located at the main plant at Donawitz (4), at Münichthal (2), at Hieflau (1) and at Vordernberg (1). Sixteen open-hearth furnaces are located, 12 at Donawitz and four at Neuberg. Rolling mills at Donawitz, Aumuehl, Neuberg and Zeltweg complete the list of the principal production units.

Most spectacular of all the company's possessions, however, is the famous iron ore mountain at Eisenerz, a mountain containing, according to surveys, some 215,000,000 tons of iron ore of workable quality. This ore shows up on the surface all over the face of the mountain, the upper part of which is being worked on a series of 64 terraces, averaging some 40 ft. in height. Other ore mines in operation are located at Hüttenberg

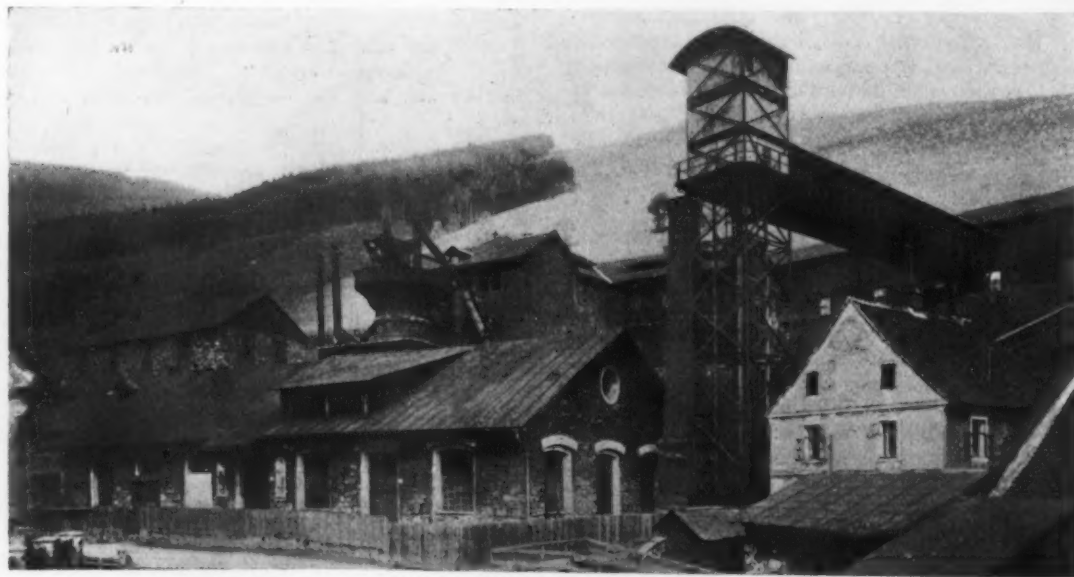
*Formerly assistant United States military attaché, Paris.

In the View at the Head of this Page Appear Two Blast Furnaces at the Eisenerz Plant, alongside the Mountain of Iron Ore. The mountain in the background is the Kaiserschild or Emperor's Shield

and in a number of other localities, some of which have been merely prospected.

Two layers of iron ore in Austria, located respectively in Styria and Carinthia, have been known for many centuries. In Carinthia, mining was carried on before the time of Christ, while in Styria it is known that mining was carried on in the early part of the eighth century. The whole history of these regions, therefore, is tied up in certain measure with the operation of mines for iron.

Donawitz, where the principal producing plant of the company is located, lies in the Mur Valley in Styria about 80 miles southwest of Vienna and some 140 miles north-northeast of Trieste. The company was formed in 1881 and through later consolidations has absorbed a large share of the Austrian iron and steel industry. Its production of pig iron and castings in 1882, at 173,546 metric tons, was about half that of 1923, when 339,635 tons were produced. Steel ingots in 1882 at 149,600 tons amounted to less than one-half the 1923 production of 321,228 tons, and less than one-third the 1912 production of 504,130 tons. Finished steel prod-

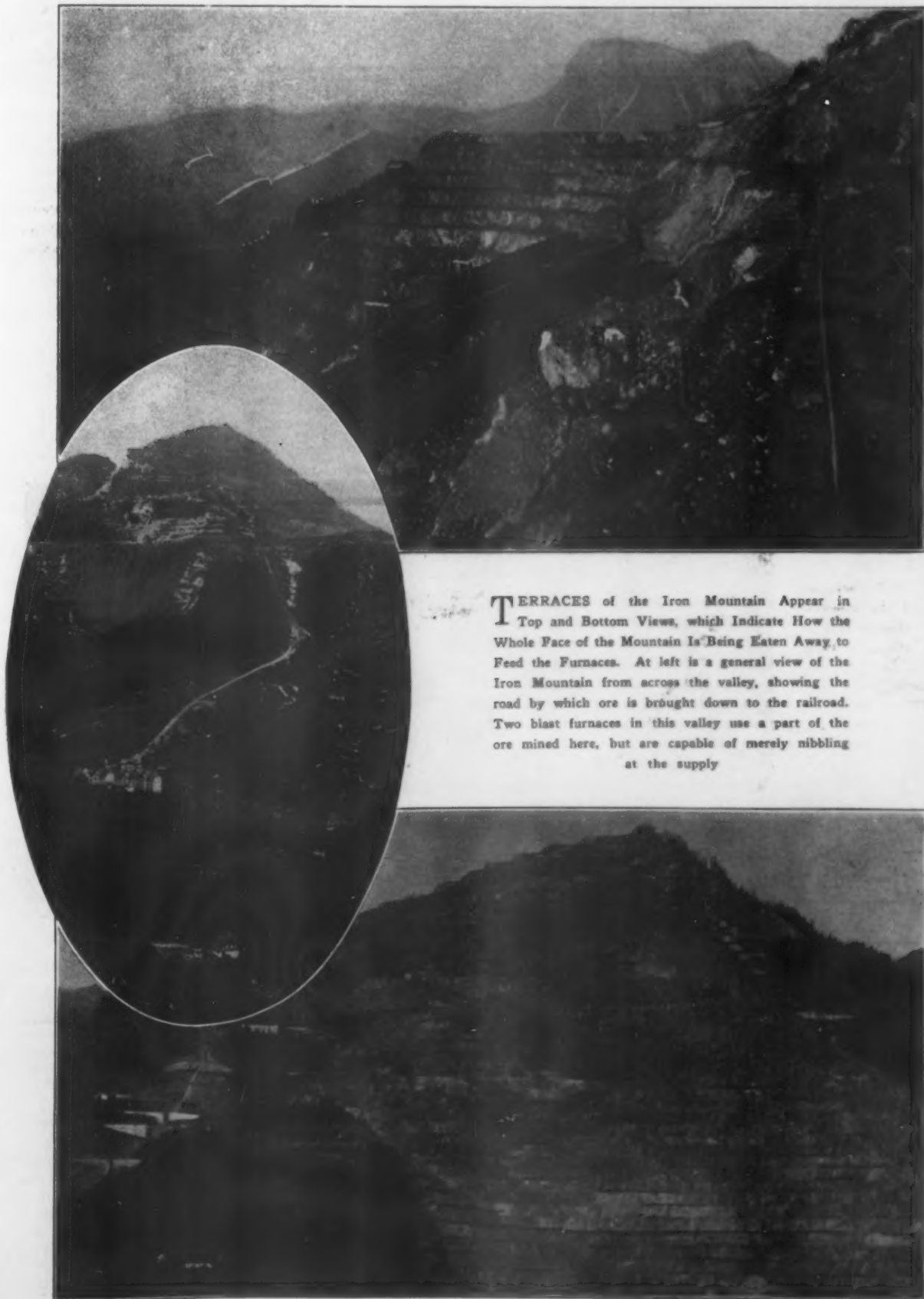


Blast Furnace in the Vordernberg Plant, which is about ten miles north of the main plant at Donawitz

ucts in 1882 were 120,388 tons, or considerably more than half the 1923 production of 198,403 tons. Outputs in 1916, due to war requirements, were the largest which the company ever has made. Pig iron was reported at 637,800 tons, steel ingots at 506,400 tons and rolling mill products at 300,200 tons, this latter being lower than in 1912, when the total was 321,220 tons. The amount of ore produced in 1916 was 2,366,900 tons.

Donawitz has four blast furnaces, of which three, operated simultaneously, can produce about 38,000 tons per month of steel-making pig iron. The blast furnace gases are used for power and other purposes. The

steel works at Donawitz include 12 open-hearth furnaces of 28 tons each, with productive capacity of more than 45,000 tons per month of steel ingots. Ten puddling furnaces are reported here, with an annual production of 16,200 tons of wrought iron. The rolling mills plant, turning out sheets, plates, girders and hoops, includes blooming mills, operated with steam engines aggregating 17,000 hp., and finishing mills electrically operated with motors amounting to 4800 hp. The rolling mill capacity is considerably greater than the steel making capacity, being estimated at 55,000 tons per month. Gray iron castings to the extent of 600



TERRACES of the Iron Mountain Appear in Top and Bottom Views, which Indicate How the Whole Face of the Mountain Is Being Eaten Away to Feed the Furnaces. At left is a general view of the Iron Mountain from across the valley, showing the road by which ore is brought down to the railroad. Two blast furnaces in this valley use a part of the ore mined here, but are capable of merely nibbling at the supply

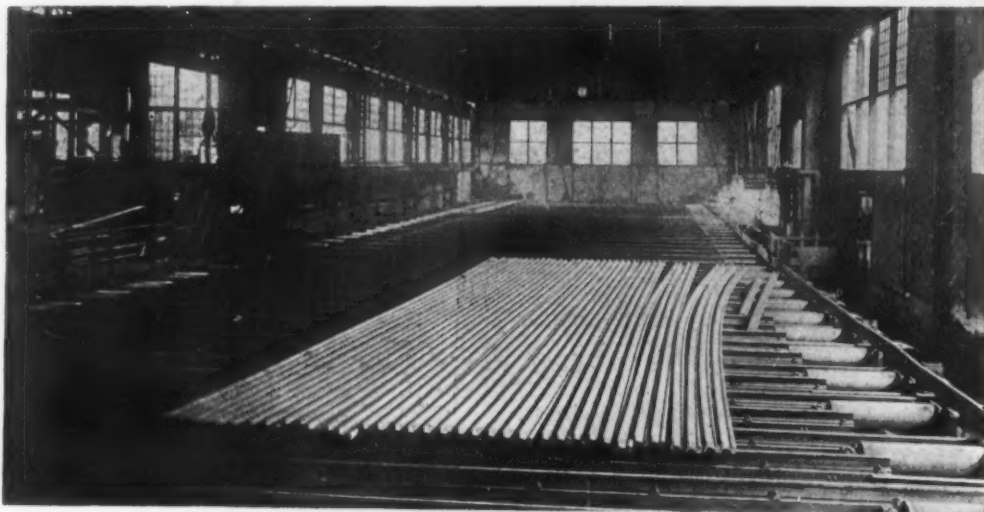
tons per month may be produced in the foundry here. When operated at capacity, 4500 men are employed.

Our heading for this article shows the blast furnace plant at Münichtal, near the iron mountain. Two 400-ton blast furnaces shown in the illustration turned out 60,236 tons of pig iron in 1923. The 1912 production from these two furnaces was nearly three times as great, having been 176,717 tons. The plant is located in a valley between high mountains and takes its ore directly from the terraces of the iron mountain.

Rolling mills at Aumuehl are devoted primarily to production of horseshoes (480 tons per month capacity) and nails (75 tons per month). There are also repair shops here and a factory for making fire brick. This plant at capacity uses 840 men.

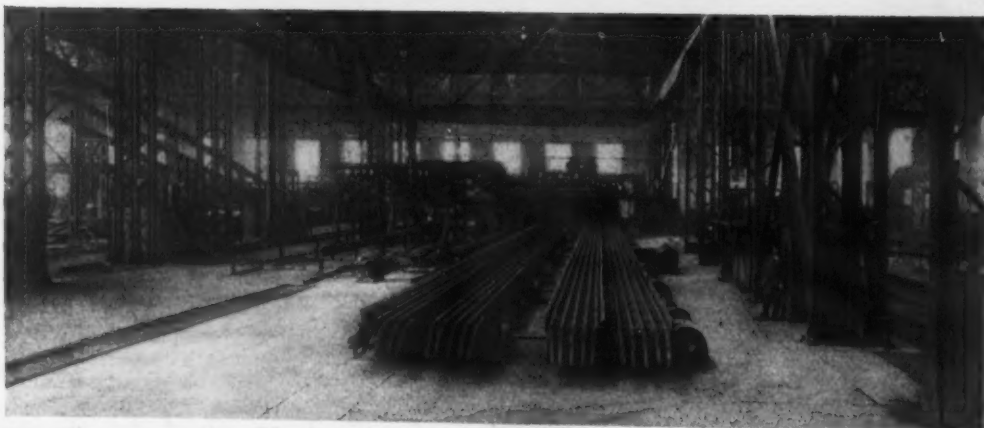
At Neuberg the steel works include four open-hearth furnaces rated from eight to 15 tons each, using producer gas on the Kerpely system. This plant has a monthly capacity of 2400 tons of ingots and 110 tons of steel castings. The rolling mills here are supplemented by a forging plant with two steam hammers, one of 12,000 kg. (13 net tons) and the other of 1000 kg. (2200 lb.), with three small hammers. Steel springs are made in one section of this plant. The rolling mill capacity here includes 1700 tons per month of semi-finished steel and 630 tons of finished steel, besides 220 tons of forged products and 360 tons of steel springs. At capacity, 700 men are employed.

Steel ingots weighing about 5000 kg. (11,000 lb.) furnished by the Donawitz plant, form the raw material



Rail Mill at Donawitz with Straightening and Finishing Equipment

Wire Rod Conveyors behind the Continuous Morgan Mill at the Donawitz Plant



Merchant Mill in the Donawitz Plant, Showing a spaciousness uncommon in American Plants

for the rolling mills at Zeltweg. These ingots are broken down into steel plates and sheets, varying from 2 to 35 mm. (No. 14 gage to 1½ in.) thick and up to a maximum of 2850 mm. (112 in.) wide. Steam engines aggregating 14,000 hp. are used for these mills. The capacity per month is given as 5800 tons of steel plates, 1400 tons of railroad switches, crossings, fish plates, etc., and 190 tons of gray iron castings. Two hydraulic presses here have capacities of 500 and 100 tons respectively. The number of men, when running at capacity, includes 420 in the rolling mill and 880 in the work shops.

One blast furnace, located at Hieflau, is used for the production of white iron, gray iron and special pig iron and is operated only when its products are required. Ore comes from Erzberg (iron mountain). The capacity is 4200 tons of coke pig iron per month and the number of men employed is 80.

One blast furnace still operated with charcoal as fuel is located at Vordernberg. This is not running at present. Its productive capacity per month is given as 1800 tons of white charcoal iron.

In the table is given, as a general summary of the company's operations, the production of the two years, 1912 and 1923, in coal, quartz, magnesite, iron ore, pig iron, steel ingots, semi-finished steel, finished steel, horseshoes, steel springs, wrought iron products, cast steel, iron castings and fireproof material (mainly fire

brick). The largest peace-time production of the company is that shown in the table for 1912. Figures for 1923 in nearly all instances fell to two-thirds or less of the 1912 output.

Output of the Alpine-Montan Establishments		
Calendar Years		
	1923	1912
Metric Tons		
Coal: Seegraben	274,212	475,560
Fohnsdorf	345,935	501,305
Koflach	112,935	99,263
Quartz: Krieglach	12,112	.....
Magnesite: Wald	11,962	.....
Iron ore: Eisenerz	1,093,300	1,791,000
Hüttenberg	110,778	78,194
Pig iron: Eisenerz	60,236	176,717
Hieflau	6,133	.....
Donawitz	273,266	390,458
Steel ingots: Donawitz	306,665	487,050
Neuberg	14,563	17,080
Semi-finished products:		
Donawitz	213,161	292,415
Neuberg	11,289	10,723
Finished rolling mill products:		
Donawitz	157,051	216,941
Kindberg	28,374	39,554
Neuberg	918	4,375
Zeltweg	12,060	70,350
Horseshoes: Kindberg	321	1,544
Steel springs: Neuberg	347	2,487
Wrought iron products worked at Neuberg	192	665
Cast steel worked at Neuberg	507	786
Iron castings: Donawitz	6,014	9,065
Kindberg	210	123
Zeltweg	1,289	2,014
Fireproof material: Donawitz	12,202	13,178

Cromwell Steel Co. Plant at Lorain, Ohio, to Be Dismantled

LORAIN, OHIO, Feb. 2.—After lying idle for four years, the Cromwell Steel Co. plant, erected and first operated here eight years ago, is to be dismantled, the equipment sold and the buildings converted for use as a cement plant.

This announcement was made by Charles F. Bruggemeir, assistant treasurer of the Guardian Savings & Trust Co., Cleveland, which as chief creditor took over the plant when it shut down in 1920. Mr. Bruggemeir, who is in charge of the property for the Cleveland bank, says that settlements were arranged with all other creditors several months ago.

Many attempts have been made to dispose of the property as a whole for the manufacture of steel. None of these succeeded.

Mr. Bruggemeir states that under the present plan all machinery and equipment will be dismantled and sold. The Universal Bearing Co. and the Lorain Brass & Bronze Co. both of Lorain, have already arranged to purchase part of the equipment. The buildings and railroad tracks will then be turned over to a cement plant.

The Cromwell plant manufactured steel ingots, seamless tube rounds and forging bars. When operated at capacity, 1200 men were employed. It had capacity for 200,000 tons of ingots and 150,000 tons of rolled products.

Industrial Advertisers Organizing in St. Louis

ST. LOUIS, Feb. 3.—The first step in the formation of an Industrial Advertisers' Association in St. Louis was taken last Tuesday evening, when an organization meeting was held in the dining room of the Chamber of Commerce at the call of George C. Nagel, advertising manager for Skinner Bros. Mfg. Co. and J. L. Ashcroft, advertising manager of Ludlow-Saylor Wire Co.

R. Fullerton Place, president of the Advertising Club of St. Louis, welcomed the new organization, asserting that its coming into existence indicated the seriousness with which St. Louis advertising men concerned with the distribution of industrial equipment are taking the job of applying the best knowledge in the science of advertising to reduce sales costs.

Philip C. Gunnion, advertising manager of Hyatt Roller Bearings Co., and past president of the Na-

tional Industrial Advertisers, explained the purposes of that organization.

Charles S. Baur, general advertising manager of THE IRON AGE, who for the last 20 years has been closely identified with the New York Technical Publicity Association, emphasized the necessity for intensive study of the distribution of industrial equipment and the concentration of effort on the most productive fields for economy in advertising.

G. D. Crain, Jr., editor of *Class*, who has been closely associated with the Engineering Advertisers of Chicago for several years, told of the functioning of that organization, and A. R. Maujer, publisher of *Industrial Power*, discussed the advantages to be gained through the organization of technical advertisers in which the problems that confront those advertisers are discussed.

The meeting was attended by about 20 prospective members, who adopted a resolution to proceed with the organization giving Mr. Nagel, who acted as chairman, the power to appoint a committee of seven to perfect a constitution and by-laws and present a working program at another meeting.

The organization will be closely identified with the Advertising Club of St. Louis, and will become a local unit of the Industrial Advertisers Departmental of the Associated Advertising Clubs of the world.

Annual Banquet of New England Iron and Hardware Association

Approximately 190 members and guests attended the thirty-second annual banquet of the New England Iron and Hardware Association, Thursday evening, Jan. 29, at Hotel Somerset, Boston. Charles A. Haines, Dodge-Haley Co., president of the association, presided.

Guests included Frederic W. Cook, secretary of Massachusetts, who represented the Governor; Hon. John C. Hall, Speaker House of Representatives of the State; James T. Williams, Jr., editor-in-chief *Boston Transcript*; Henry Cabot Lodge, grandson of the late Henry Cabot Lodge; Rev. George Hale Reed, and Denis A. McCarthy, humorist. Hon. Samuel L. Powers, who has acted as toastmaster at the association's annual dinners for a great many years, again officiated.

William H. Bowe was chairman of the entertainment committee, being assisted by George J. Mulhall, secretary and treasurer of the association. F. Marsena Butts, Butts & Ordway Co., was chairman of the reception committee.

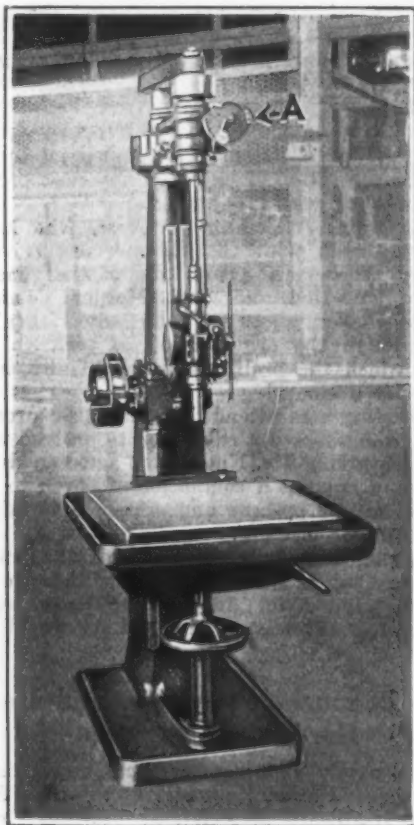
Variable Speed Drilling Machine

Ease of speed control is among the features claimed for a new model Viktor drilling machine recently brought out by the Henry & Wright Mfg. Co., Hartford.

The machine may be arranged for either belt or motor drive, the motor being mounted by a special flange directly on the side of the column in place of the tight and loose pulleys shown in the machine illustrated. The rotor shaft extends through the column, and at the center of the latter a helical bevel pinion is keyed to the shaft, meshing with a gear upon the lower end of the vertical shaft. A recess in each of the castings at this point forms a closed pocket which contains sufficient oil to cover the gearing.

From a two-step cone at the top of the vertical shaft the drive is by belt to a sleeve that is connected directly to the first member of a speed variator device, of which the drill-spindle is the driven member. By means of this variator, the speed of the driven member may be changed from the slowest to the fastest by a single movement of the small lever A at the top of the bracket. The variation of speed is an even gradation, without steps between the minimum and maximum limits.

The motor, or the driving pulley, runs at a constant speed of 1750 r.p.m. With the belt in the position shown, the range of spindle speed is from 2700 to 900; in the lower position the range is from 1000 to 300 r.p.m. Practically any speed within the respective ranges is available instantly, without stopping the spindle or interfering with its movements. The feeds are taken off the spindle by a belt from a three-step cone, and re-



For Motor Drive, the Motor Is Mounted on the Side of the Column in Place of the Pulley Shown. A speed variator device is a feature

main in constant relation to the spindle speeds, regardless of variation of the latter. The feed may be continuous, drilling down to a stop, returning rapidly to the starting point and repeating indefinitely without attention from the operator, or it may be set to release upon the completion of each cycle. A hand lever may be used also to feed the drill or to return the spindle to the starting point.

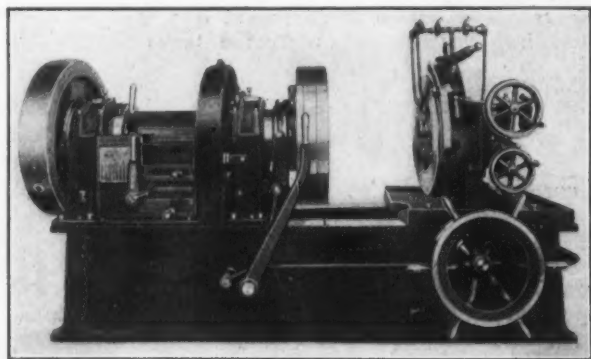
The type of feed desired is obtained by means of a single control handle conveniently located on the front of the arm.

The machines are available with from one to four spindles. A gang of the machines may be set back to back and table to table when floor space is at a premium. The spindles are $\frac{3}{4}$ in. in diameter and have a No. 2 Morse taper hole. Ample power is provided to drive drills up to $\frac{3}{4}$ in. in diameter. The table working surface of the single-spindle unit is 16 x 16 in. on an 8-in. overhang, or 24 x 24 in. on a 12-in. overhang. The table has a vertical adjustment of 21 in. and the rack movement of the spindle is $6\frac{1}{2}$ in. The maximum distance from the end of the spindle to the table surface is $27\frac{1}{2}$ in. A tank for the compound is inclosed within the base of the column, and a geared pump driven by belt from the main drive shaft, is provided.

The weight of the single-spindle machine is 920 lb. net and the floor space occupied is 22 x 32 in.

6-In. Pipe Threading and Cutting Machine

A 6-in. pipe threading and cutting machine recently added to the line of the Landis Machine Co., Waynesboro, Pa., is shown in the accompanying illustration. The machine may be arranged for either belt or motor drive. Two die heads are employed, one covering a



Two Die Heads Are Employed, the Entire Range of Each Being Covered by One Set of Chasers. The machine, as shown, is arranged for belt drive

range from 1 to 2 in. and the other from $2\frac{1}{2}$ to 6 in. The entire range of each head is covered by one set of chasers.

The motor of the motor-driven machine is mounted on a plate at the rear and may be applied to the belt-driven machine in service. A $7\frac{1}{2}$ -hp. 1200 r.p.m. motor is employed and the power is transmitted by silent chain. The travel of the carriage of the machine is 22 in. Eight speeds are obtainable by means of a self-contained gear box, located beneath the main spindle. All gears run in oil. Bushings are of bronze. Shaft bearings are lubricated automatically by a forced feed system and the main bearings by flat-link chains which carry oil from suitable reservoirs.

The front chuck has universal adjustment and is lever operated, which permits gripping and releasing of the pipe while the chuck is in motion. The universal geared chuck provided at the rear of the machine is fitted with grips for screwing flanges on and off. A reverse drive for taking flanges on and off is obtained by shifting a lever. The cross-rail supports the die head, and is fitted also with cutting-off tools, a reaming tool and a length gage.

The machine employs the company's stationary die head and Long-life tangential chaser. The floor space occupied is 9 ft. 8 in. by 4 ft. 10 in. The weight of the machine is 8800 lb.

Charles F. Abbott, executive director, American Institute of Steel Construction, gave a luncheon Jan. 27 at the Palace Hotel, San Francisco, to all of the sales representatives of Eastern mills for the purpose of explaining the technical and educational work that is being done by the institute. Mr. Abbott explained the purpose of the recent California steel industry conference at Del Monte from which he said important results will be obtained, for the general good of the entire steel industry.

To Promote Steel Industry of California

Conference at Del Monte Lays Plans for Effective Development on Pacific Coast Without Antagonizing Eastern Manufacturers and Distributors

BY CHARLES DOWNES*

OUTSTANDING among the developments at the first California steel industry conference held Jan. 23, 24 at Del Monte, under the auspices of the California Development Association and the Los Angeles and San Francisco Chambers of Commerce, were the following:

1. The election of an executive committee composed of: Maynard McFie, W. T. McFie Supply Co., Los Angeles, chairman; Charles M. Gunn, Gunn, Carle & Co., San Francisco, vice-chairman; Charles S. Knight, California Development Association, secretary; E. S. Houdlette, Pacific Coast Steel Co.; F. J. Bruzzzone, Baker, Hamilton & Pacific Co.; P. F. Gillespie, Judson Mfg. Co.; J. M. Culverwell, Kortick Mfg. Co.; H. H. Whiting, Best Steel Casting Co.; J. D. Fenstermacher, Columbia Steel Corporation; L. C. Scheller, Union Hardware & Metal Co.; N. E. Dawson, American System of Reinforcing; R. P. Miller, Union Iron Works; W. J. Boyle, Boyle Mfg. Co.; Martin Madsen, Madsen Iron Works. The committee will meet March 6 at Los Angeles.

2. The adoption of resolutions calling for (a) the coordination of all steel industry groups and agencies of California for the most effective development of the steel industry of the Pacific Coast, (b) the formulation of a program to obtain the purchasing policy of buyers of steel products in California to support California, Pacific Coast and American steel products, (c) the formulation of a plan to reduce foreign importations of steel products in California to a minimum, (d) the formulation of a plan for the complete survey of the steel industry of California, for the developments of new markets, the ascertaining of facts about the tariff on steel products with a view of obtaining just protection, and for the purpose of gathering data on production and consumption of steel products for use in forecasting future developments of the industry, (e) the formulation of plans for the encouragement of new industrial enterprises in California, and (f) the formulation of a plan to obtain the active participation of other interested States on the Pacific Coast and in the West in these developments.

3. Sixteen California structural steel fabricators signed applications for membership in the American Institute of Steel Construction, following an address by Charles F. Abbott, executive director of the institute.

4. The stressing of the importance of a broader and more intensive development of the Pacific Coast steel industry by Maynard McFie, chairman of the conference, in the keynote address.

Chairman McFie's Address

"This meeting has been convened in no narrow spirit," Mr. McFie said. "It has not been convened on the part of the California steel mills alone. The first part of the resolutions shows the need for coordination of all the steel industry groups. That does not mean only the steel mills, because they after all have the largest interest in the steel industry in California, but it means the jobbers, the foundries and the manufacturers. The idea was to get together a group of men interested in the development of the California steel industry, to talk over the fundamentals of the industry and come to some understanding on different points. There existed a doubt that such a meeting could be convened. Possibly the fact that some 175 are assembled here will give assurance that such a meeting could be convened and have influence.

"We are not legislating against Eastern mills. We

are all admirers of the representative Eastern companies. I want that thought in the minds of everybody. This matter was discussed with those people before this conference was convened, and they fully understood what it was all about. It is to discuss problems concerning the entire steel industry in California that we are here.

Plan Just Started

"A great deal of the steel tonnage to be consumed in California should be legitimately diverted to these reliable concerns of the East. They are going to sell on the Pacific Coast. We must see that they get the tonnage to which they are legitimately entitled. This group was gathered to bring forth the principles of the steel industry in toto.

"This program has just started. We have had our initial meeting and something constructive must come of it. The industrial department of the Chambers of Commerce of the North and the South must follow it up. The publicity departments of the chambers of commerce must give us their assistance in implanting this need of information in the minds of the public. They must help us to enlarge and strengthen the steel industry of the Pacific Coast, and particularly of California, not in a narrow sense, but to what will obtain in California 20 years from now.

"The steel industry in California is where the citrus fruit industry was 25 years ago. And you have seen the miraculous growth of that. That is what we must undertake."

Basic Position of Steel Industry

The first session of the conference was given over to addresses. F. J. Koster, president of the California Barrel Co., and former president of the San Francisco Chamber of Commerce, in the course of his address emphasized the basic position of the steel industry in relation to other industries. He said that when the Columbia Steel Corporation began the manufacture of nails it opened a new market for the California barrel industry which had not before manufactured nail kegs.

Paul Shoup, vice-president Southern Pacific Railroad, in an address on "Transportation and Its Relation to Industrial Expansion," stated that it is only a question of time, judging from the recent development of the Pacific Coast steel industry, before the Iron Chief Ore Co. property will be called on to supply the new demands of the coast. Mr. Shoup spoke in detail about the relations of the railroads with the Interstate Commerce Commission, the increased cost of railroad materials and equipment, and the necessity of the railroads taking an active part in the development of natural resources and of new industries in the West.

Wigginton E. Creed, president Pacific Gas & Electric Co., and of the Columbia Steel Corporation, speaking on hydro-electric power and the steel industry, stated that no single industry was basic in a strict sense because the entire economic structure is pyramidal in form, although the base of the pyramid, he said, is formed by agriculture, steel, transportation and power. He compared the steel industry and the hydro-electric power industry and pointed out that each contributes to the development of a great diversity of other industries. No two industries, he said, are owned by the public to the extent to which the steel industry and the public utilities corporations are owned. The hydro-electric power industry, he pointed out, is a large user of steel and the steel industry is one of the largest users of electric power. The steel industry in California, he

*Resident editor, THE IRON AGE, San Francisco.

said, is dependent on the use of electricity, because it is the most economical source of power in the State.

Logical Center in the West

"California is the logical center of the steel industry in the West," Mr. Creed said, "and the development of the California steel industry is an important part of the development of the West. Five of the seven Western rolling mills are in California, one is in Utah and one in Washington. The steel industry of the West has been a natural evolution, a natural growth to meet the local demand. Before the war, only a few bars and small shapes were rolled, and the mills were dependent on scrap.

"The war changed all that, and the need for raw materials and pig iron resulted in the opening of the first blast furnace in the West during 1924 at Provo, Utah. Pig iron is now being used in open-hearth furnaces and mill capacities have expanded. The past year has witnessed the opening of two sheet mills, a wire mill and a nail mill, and the progress of the past few years is a significant portent of what the future holds for the steel industry of the West." Mr. Creed also stated that the Pacific Gas & Electric Co. saved \$83,000 last year by purchasing its transmission towers in California from the Pacific Coast Steel Co.

At the second session, short talks were made by P. F. Gillespie, Judson Mfg. Co., Reese Llewellyn, Llewellyn Iron Works, John E. Webster, Ducommun Corporation, N. E. Dawson, American System of Reinforcing, J. C. Kortick, Kortick Mfg. Co., and H. H. Whiting, Best Steel Casting Co., representing the steel mills, structural shops, merchant bar jobbers, reinforcing

jobbers, general manufacturers, and foundries respectively. Each speaker urged the necessity of better co-operation, and spoke briefly on the problems of his individual group.

Group chairmen were then appointed by the chair as follows: Steel mills, D. E. McLaughlin, Pacific Coast Steel Co.; fabricators, Harry Hitchcock, Baker Iron Works; sheet and bar jobbers, L. C. Scheller, Union Hardware & Metal Co.; reinforcing jobbers, Chas. M. Gunn, Gunn, Carle & Co.; general manufacturers, E. O. Shreve, General Electric Co.; foundries, G. A. Axelson, Axelson Machine Co.

At the group meetings resolutions were indorsed and committees of ten appointed, five for Northern California and five for Southern California, the chairman of each division being elected to the executive committee.

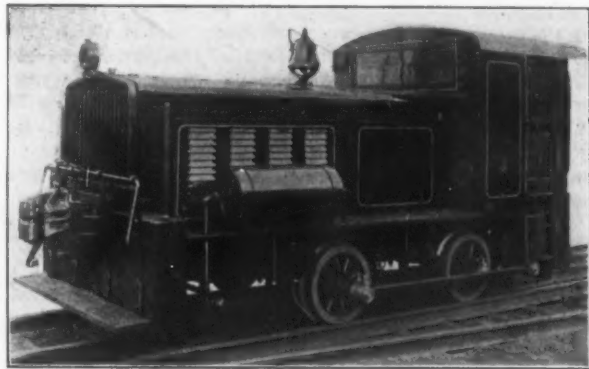
New Members of American Institute

The closing session was devoted to the adoption of resolutions, the ratification of the executive committee and a short address by Chas. F. Abbott, executive director American Institute Steel Construction. Mr. Abbott in his address before the fabricators at the group meeting secured membership applications for the institute from the following firms: Pacific Iron & Steel Co., Herrick Iron Works, Central Iron Works, Moore Dry Dock Co., California Steel Co., Judson Mfg. Co., Pacific Rolling Mills, Pacific Coast Engineering Co., Dyer Bros., Mortenson Construction Co., Ralston Iron Works, Lowith Iron Works, Union Iron Works, Baker Iron Works, Llewellyn Iron Works, Western Iron Works.

Gasoline Locomotive with Airbrake Equipment

The incorporation of Westinghouse airbrake equipment is a feature of the standard gage 13-ton gasoline locomotive illustrated, which has been added to the line of the Vulcan Iron Works, Wilkes-Barre, Pa.

Locomotives of the same design are available also in 15, 20 and 25-ton sizes. The locomotive shown was built for a large Canadian pulp and paper mill, and the



13-Ton Gasoline Locomotive with Westinghouse Airbrake. A 110-hp. six-cylinder Climax engine is used. Spring draft rigging is provided both front and rear

airbrake equipment is a safety feature made necessary by the heavy grades and the slippery track during the winter.

The equipment used is the Westinghouse type A.M.M. consisting of an air compressor which is driven from the engine shaft and provided with a governor and automatic unloader. When the predetermined pressure is reached, the governor unseats the intake valves, and when the pressure drops the governor cuts in the valves automatically. The operator's valve is the type M-24, with type A bracket and C-6 feed valve. The equipment is for both straight and automatic application, for braking on both the locomotive and car wheels. The valve used is designed to operate both with one handle.

The two main reservoirs are located on each side

of the locomotive, the auxiliary reservoir, triple valve and double check valve are underneath running board and are accessible for inspection and testing. The brake operating cylinder is located to facilitate replacing the piston packing when necessary. The air operating cylinder is inter-connected with a separate brake lever in the cab, so that the brakes may be applied by hand in case of air failure. A feature is that the airbrake apparatus may be quickly released from service, if necessary, and the auxiliary hand brake used alone. Regulation air hose is provided both front and rear of the locomotive for coupling to standard railroad cars.

The locomotive is equipped with spring draft rigging both front and rear, which is intended to absorb shocks incident to coupling to standard gage cars. The cab is of steel, and is especially adapted to cold weather conditions. It has sliding doors at the rear and left side, and all windows are adjustable. A heater is also provided in the cab.

The frames are of cast steel, and the wheels have cast iron centers with steel tires. A 110 hp. six-cylinder Climax engine is employed, and the transmission is of the Cotta constant-mesh type, providing four speeds forward and four reverse. The ratings for the tractive forces and speeds range from 2 m.p.h. and 7800 lb. to 10.5 m.p.h. and 2800 lb.

Bessemer Limestone & Cement Co. Will Enlarge Plant at Bessemer, Pa.

At the yearly stockholders' meeting of the Bessemer Limestone & Cement Co., Youngstown, held last week, directors authorized the expenditure of \$200,000 to enlarge the capacity of the company's plant at Bessemer, Pa., for cement, and to improve its quarry equipment. The proposed increase in storage capacity will give the company total capacity for storing 250,000 bbl. of cement. Cement shipments in 1924 were 1,250,000 bbl., against 1,202,000 bbl. in 1923. The company also shipped last year 500,000 tons of agricultural limestone.

John Tod was reelected president, R. C. Steese a vice-president and George Treat secretary-treasurer. Fred R. Kanengeiser was elected first vice-president and general manager, and Charles Schmutz vice-president in charge of sales.

PHILADELPHIA FOUNDRYMEN

Association Chooses C. R. Spare for President and Reelects Howard Evans Secretary

At the thirty-fourth annual meeting of the Philadelphia Foundrymen's Association held at the Manufacturers' Club, Jan. 14, C. R. Spare, American Manganese Bronze Co., Holmesburg, Philadelphia, was



HOWARD EVANS



C. R. SPARE

elected president, and C. F. Hopkins, second vice-president Ajax Metal Co., was elected vice-president. W. G. Summers, assistant purchasing agent Phoenix Iron Co., was reelected treasurer and Howard Evans, J. W. Paxson Co., was reelected secretary for the thirty-fourth consecutive year. The executive committee is as follows: Walter Wood, R. D. Wood & Co., Frank Krug, sales manager White & Brothers, Inc., Theodore E. Brown, president General Furnace Co., Walter T. MacDonald, purchasing agent Fletcher Works, Inc., William S. Haney, vice-president Penn Steel Castings, and J. Howard Sheeler, president Sheeler-Hemsher Co. The membership committee is as follows: R. R. Belleville, Joseph Dixon Crucible Co., H. M. Giles, general superintendent South Works, Westinghouse Electric & Mfg. Co., W. L. Kalbach, pattern maker, J. F. High, Air Reduction Sales Co., and R. E. Blazo, secretary Reed, Fears & Miller. The trustees are C. R. Spare, W. G. Summers, Howard Evans and Frederick M. Devlin.

Mr. Spare, the new president, is also president of the American Manganese Bronze Co., with works at

Holmesburg, a suburb of Philadelphia. The company is one of the largest producers in the country of non-ferrous castings. It made a large part of the bronze used in the building of the Panama Canal and also the largest bronze valves ever made, which were used in the building of the Catskill aqueduct. Commenting on the outlook for non-ferrous metals in 1925, Mr. Spare says,

"The great wave of optimism and confidence which is sweeping the country has resulted in increased industrial activity in all the metal trades. The heavy and sustained demand for copper and the other non-ferrous metals during December has continued into this year. The foreign situation has improved steadily while the domestic demand is very encouraging. Not only has consumption increased considerably in those fields in which copper, bronze and brass have usually dominated, but extended uses for these alloys have been developed and researches now under way are aiming at new applications for these metals. The year of 1925 bids to be a banner year for metals."

Mr. Evans is one of the directors of the J. W. Paxson Co., maker of foundry equipment and supplies. This company built the cupola melting plants for the Baldwin Locomotive Works, the Cramp Ship & Engine Building Co., the U. S. Navy Yard foundry at League Island and the Pennsylvania Railroad foundry at Altoona. Commenting on conditions present and past, Mr. Evans says: "Among the many changes that have taken place since 1891 the use of structural and pressed steel, brass and concrete has eliminated the use of castings to a large extent, particularly cast iron columns, store fronts, hardware, parts of locomotives, freight and passenger cars, special pieces of machinery and motors. Castings made in permanent molds, the latest being cast iron water and gas pipe by centrifugal pouring, all compete with the old way of casting in sand; but new fields have opened to compensate, in part.

"The wage of the molder and core maker has increased three or four times and the cost of raw material and transportation is higher. The iron castings that now sell at 6c. to 10c. per lb. were only 1½c. to 3c. when the foundry association started. The art of molding has improved wonderfully; many large castings that were made in loam are now made in green sand and the molding machine with the squeeze or jolt ram has reached a high point of efficiency. These factors with the up-to-date electric crane and hoists have made great strides in reducing the cost of casting, much of which is brought about by the annual conventions of the American Foundrymen's Association and their exhibits, showing the improvement each year since 1896, the first, at Philadelphia, when this association was born under the auspices of the Philadelphia association that has just held its 342nd monthly dinner and meeting."

National Metal Trades Association Will Meet in Cleveland in April

The National Metal Trades Association will hold its twenty-seventh annual convention at Hotel Cleveland, Cleveland, Wednesday, April 22. This is a decided change of policy, as nearly all of the conventions of the association for many years have been held in New York. The association last met in Cleveland in 1906. It met in Boston in 1907 and after that, with the exception of the meeting at Worcester, Mass., in 1914, all of the conventions have been held at the Hotel Astor, New York.

A branch of the National Metal Trades Association has been organized at Toledo, Ohio, with 18 member companies.

"The Effect of Low-Temperature Heat Treatment on the Properties of Cold-Drawn Steel Wire (Gun-Wire) and on its Behavior under Stress at Raised Temperatures" is the title of R. D. Report No. 60 of the research department of Woolwich Arsenal.

Swedish Metallurgist to Address New York Steel Treaters

The first public appearance in the United States of Dr. Carl Benedicks, director metallographic institute, Stockholm, Sweden, will be at the February meeting of the New York chapter of the American Society for Steel Treating on Wednesday evening, Feb. 11. His subject will be "The Nature of High-Speed Steel." The February meeting has been advanced one week because of the annual February meeting of the American Institute of Mining and Metallurgical Engineers the week of Feb. 16.

The chapter's annual smoker is scheduled for the evening of March 18.

Automatic Substations in Steel Mills was the subject of discussion at a joint meeting held Thursday evening, Jan. 26, at the rooms of the Western Society of Engineers, Chicago, by the Chicago sections of the American Institute of Electrical Engineers and the Association of Iron and Steel Electrical Engineers.

AMERICAN STEEL PLANT OUTPUT

Census Figures for 1923 Show Tonnage and Value of Many Items—More Than Double the 1921 Total

WASHINGTON, Feb. 3.—The total output of steel works and rolling mills in 1923 amounted to \$3,154,324,671, an increase of 113 per cent over the \$1,481,659,352 of 1921. As an interesting comparison, the sales of the United States Steel Corporation in 1923 appeared in the annual report of that company at \$992,916,162. The census figures are from 489 concerns in 1923, having 388,201 wage earners and paying \$637,825,137 in wages. The horsepower used was 4,115,403, while the coal consumed amounted to 29,571,036 net tons. Pennsylvania had 186 of the establishments, 81 were in Ohio, 31 in New York, 30 in Illinois, 25 in Indiana and the remainder in 24 other States.

Most of the tonnage items already have been reported in THE IRON AGE, from figures collected by the American Iron and Steel Institute. Among those which are new or in a different form are included the following, the figures being for 1923:

	Gross Tons	Value Reported
Rerolled rails	112,643	\$5,116,406
Rail fastenings	768,431	43,192,852
Spike and chain rods, bolt and nut rods, etc.....	685,524	10,354,757*
Wire rods for sale.....	651,471	32,814,324
For interplant transfer...	544,137	26,342,269
Skelp for sale.....	566,952	26,879,050
For interplant transfer...	815,652	42,336,212
Nail and tack plate for sale..	18,697	1,434,376
Kegs 200 Lb.		
Railroad spikes, bolts and nuts	2,344,725	17,446,113
Other bolts, nuts and rivets..	2,101,570	26,037,950
Horse and mule shoes.....	600,837	6,975,340

*Does not include value of the 525,774 tons consumed in the works.

British Preferential Tariff on Steel Products

The New Zealand Government has issued notice referring to the application of the British preferential tariff to bars, bolts, rods, angles, tees, channels, girders, hoops, plate or sheet iron or steel made wholly in Great Britain or British possessions, from pig iron and iron billets and blooms of foreign origin. The conditions under which the preferential now is applied require that 25 per cent of the factory cost of the goods be British made. Beginning April 1, the required proportion of British value is to be advanced to 75 per cent, unless other conditions are specially laid down with regard to particular commodities. The present Order-in-Council provides that the foregoing articles will be regarded as wholly manufactured in such British countries for the purpose of the certificate of origin.

New Non-Corrosive Alloy of Copper and Silicon

An alloy, which is characterized as a multiple resistant material, has been developed by the Du Pont Engineering Co., Wilmington, Del. It is an alloy of copper and silicon under the name of "Everdur." Planned and developed to meet corrosion problems existing with the use of hydrochloric acid, it has been found to be resistant to a large number of other corroding agents. It also possesses a high tensile strength and elastic limit and, according to the company, it can be readily fabricated into forms in which steel may be obtained, including seamless tubing. It is therefore pointed to as available for application in all industries afflicted with corrosion problems.

Everdur has been in plant use for several years under conditions where corrosion is caused by sulphuric acid, sulphates of aluminum, chlorine solutions, fruit juices, lactic and citric acids, the salts of several of the metals, nitric, carbolic and oxalic acids, as well as caustic soda. It is said that it has met these conditions with success.

Early in its history the alloy was discovered to be workable by most of the standard methods. It has a yield point up to 56,000 lb. per sq. in. The fact that it machines readily makes excellent castings and drop forgings; rolls and draws hot or cold; can be welded, brazed or soldered; and is easily brought to desired tempers by annealing, brought the metal into wide use by the company. Some of the forms in which it has been used are drop forgings, sheets, rods, wire, pipes and pipe fittings, castings, bolts, nuts and screws, chains, nails, etc.

The metal is golden in color and will take a high polish. It is said to be comparable in cost with high quality bronzes. The metal was produced for specific application in Du Pont operations. When its diversified properties were recognized and tested it was decided recently to expand its applications to the general field. The Du Pont company is making exhaustive tests for new fabrication and resistant possibilities.

Receiver of Struthers Furnace Co. Authorized to Sell Pig Iron

The common pleas court of Mahoning County, Ohio, has authorized H. W. Grant, receiver for the Struthers Furnace Co., operating a merchant stack at Struthers, adjoining Youngstown, to sell pig iron piled in the company's yards up to \$200,000, proceeds to be applied in retiring notes held by the First National Bank, Pittsburgh, and the Guaranty Trust Co., New York. The receiver has also received authority to enter suit against W. C. Runyon, an officer of the furnace company, and his wife, to recover property in Westchester County, N. Y., alleged to have been purchased with funds belonging to the company.

In Youngstown, it is regarded as doubtful by those familiar with the company's financial condition, whether it can be rehabilitated and liquidation of its assets is considered probable. Sale of the company's blast furnace and industrial property at Struthers to one of the steel-making interests at Youngstown is regarded as likely.

Algoma Steel Corporation Preparing for Increased Operations

The rail mill of the Algoma Steel Corporation, Sault Ste. Marie, Ont., will be in full operation on double turn by March 2, according to an official statement. The company will start putting men on next week to get the plant in shape for practically full operation. One blast furnace in addition to No. 2, which is now blowing, and all the open-hearth furnaces will be started about Feb. 20, so as to have steel ready for the rail mill. Both the 18-in. and the 12-in. merchant mills will be started shortly, as the company is negotiating for business which it is hoped will keep these mills in regular operation. So far orders which will keep the rail mill rolling for four months on double turn have been booked and the company is negotiating for further tonnage. The rails are all for Canadian roads.

Operations of Railroad Repair Shops

Work done in the repair shops of steam and electric railroads in 1923 is reported by the Census Bureau at \$1,520,092,751. About 94 per cent of the total was represented by work of the steam railroad repair shops. The average number of wage earners was 523,430 and of these the steam railroads accounted for 488,505. Total wages paid were \$772,968,122; the horsepower used, 807,754, and the coal consumed, 7,982,620 net tons.

Thirty-five structural steel fabricators attended a luncheon given by the Judson Mfg. Co., at the Palace Hotel, San Francisco, Jan. 26, in honor of Charles F. Abbott, executive director, American Institute of Steel Construction. Mr. Abbott spoke on the work and plans of the institute and said that Lee H. Miller, chief engineer of the institute, would visit California in April or May for a series of conferences.

NEW PNEUMATIC GRINDERS

Three Moving Members to the Motor—Durability and Accessibility Are Features

Portable pneumatic grinders based on the "roto" principle and available in several sizes for grinding, buffing and polishing and cleaning have been placed on the market by the Warner & Swasey Co., Cleveland.

The machines operate through the usual air line supply. They differ from the recognized types in that they have a rotor mounted on the drive shaft with the valve mechanism, controlled by a sliding valve, instead of using pistons as a source of power. The power is developed by three moving parts.

The operation of the valves may be noted from Figs. 2 and 3, which show a section through the cylinder. Air enters through the inlet, A. A small portion of

shown in Fig. 5, there are but two points of friction contact. These are the contact of the two valve blades as they rise and fall on the eccentric surface of their respective rotors. The blades are of a special fiber material which is tough and durable and being in contact with the steel rotor they absorb such wear as occurs, the wear being thereby confined to two conveniently replaceable parts. In replacing a blade a screw driver is the only tool required, the cap at the top of the cylinder being removed, new blades inserted, and the cap replaced.

It is to be noted that there is no friction contact between the surface of the rotors and the cylinder walls. Clearance of from 0.002 to 0.003 in. is provided and a film of oil serves to seal this clearance, preventing leakage of air past the rotor surface. An oil reservoir in the air inlet holds a day's supply. The oil is fed into the cylinders in the form of a mist, which may be adjusted by means of a needle valve in the handle.

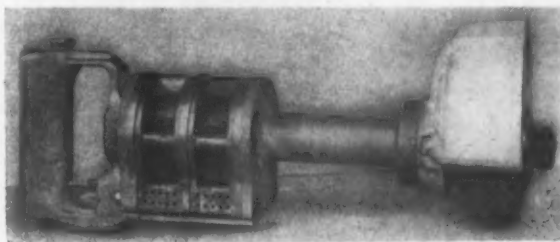


Fig. 1—Pneumatic Grinder with Spade Handle. Three types of the machine are available for various classes of work

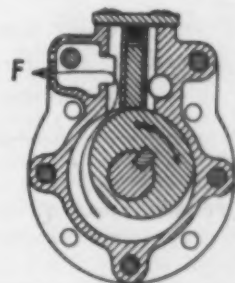


Fig. 3—With Rotor in Position Shown, the Air Is Exhausted Through the Ports

Fig. 4—Shaft Assembly with Valve Blades. There are but three moving members to the motor

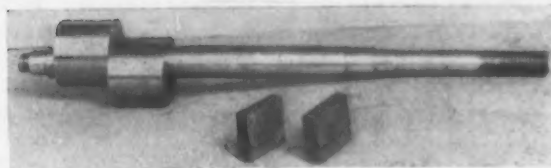


Fig. 5—Longitudinal Section. Except for ball bearings, there are but two points of friction contact

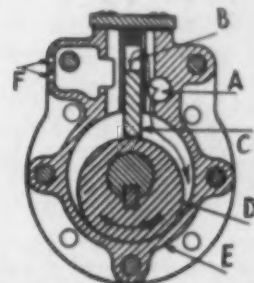
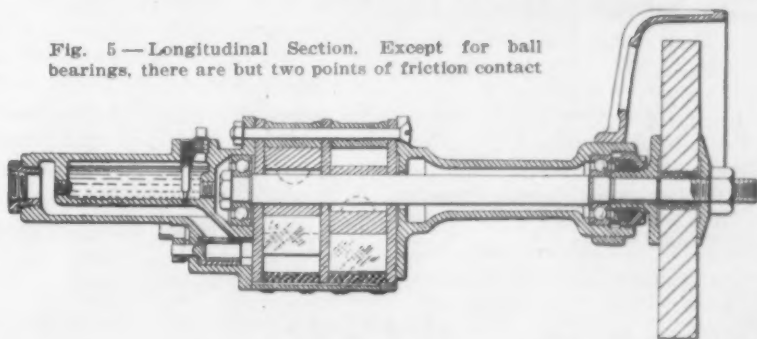


Fig. 2—Section Through Cylinder, Showing the Operation of the Valves. The simplicity of construction is intended to facilitate smooth flow of power

this air is conducted upward to the air cushion chamber, B, and is deflected downward exerting a constant pressure on the upper edge of the valve blade, C. This pressure maintains a sealing effect between the eccentric surface of the rotor, D, and the valve blade, C, regardless of the position of the grinder. Most of the air entering the inlet, A, rushes into the cylinder, E, in the direction shown by the arrows, causing rotation of the rotor, D, in a clockwise direction. When the rotor has revolved to the position shown in Fig. 3, the air moves upward to the exhaust chamber and is exhausted through the ports shown at F.

The three moving parts of the machine, shown in Fig. 4, comprise the shaft assembly to which the two rotors are keyed, these being of chrome-nickel steel, and the two valve blades which are made of special light material to reduce the momentum due to reciprocation. The two rotors which turn in their respective cylinders are mounted directly opposite on the shaft, an arrangement intended to give a balanced effect, and an overlapping power stroke in each cylinder. This is said to provide smooth flow of power.

Wear of moving parts has been reduced to the minimum. Disregarding the friction between the shaft and the two ball bearings on which it is mounted, as

The machines are available with either a spade or straight type handle. The handle and housings are of aluminum. The grinders are said to operate efficiently at pressures from 65 to 90 lb. per sq. in. with an air consumption of 32 to 40 cu. ft. per min. The consumption of air remains constant. The type D-2 machine, for general grinding work, uses an 8 x 1 in. or 6 x 1½ in. wheel. It weighs 15 lb. and its free speed is 4500 r.p.m. A type D-2-X, for buffing and polishing, has a free speed of 6000 r.p.m., with an 8 x 3-in. aluminum buffing wheel. The weight is 15 lb. The type D-1 is for light grinding where a 6 x 1 in. grinding wheel is used and for automobile body buffing. It is adapted for work requiring good speed and power for wire brush cleaning and polishing. It is suitable for automobile bodies. The weight is 8½ lb. and the working speeds are 3500 to 7000 r.p.m., as ordered.

Edition No. 25 of "How to Run a Lathe," in 160 pages, 5¼ x 8 in., has been published by the South Bend Lathe Works, South Bend, Ind. The book contains instructions on care and operation of a screw cutting engine lathe and is for the machinist apprentice. The price with paper binding is 25c.; with leatherette, 75c.

COST TRENDS IN MANUFACTURING*

1. The ratio of **labor** expense to value of iron and steel produced continues to show a decreasing trend, indicating larger earnings in the industry.
2. **Coal** prices have weakened a little owing to heavy increases in production; but consumption is large and stocks are decreasing. Moderate strength should develop.
3. Prompt correction of the trend toward over-production promises soon to restore firmness to **coke** prices.
4. **Foundry and machine shop** activity has been slow in gaining headway and is still much lower than a year ago. The relatively high level of payrolls suggests that wages may be a handicap.

BY DR. LEWIS H. HANEY

Director, New York University Bureau of Business Research

Price Spreads: Raw, Semi-finished, and Finished Commodities

THE curves in Fig. 1 show the relative trend of the prices of raw materials, producers' goods and

various heavy chemicals, etc. The spread between the price of the raw materials in general and the finished goods is increasing.

It is quite evident that under such circumstances integrated industrial concerns which cover all stages of an industry are in a relatively strong position and it would seem logical that the existing situation should in-

crease the trend toward complete industrial integration.

In comparison with 1921, raw materials are now at a high level. Finished goods are a little higher than they were in the earlier year; while the average of semi-finished or producers' goods is actually lower than the average for 1921. It follows that the spread between raw and finished goods is greater than in 1921—in fact, it is about 7 per cent greater. The most notable point, however, is that the spread between raw and semi-finished goods is actually 11 per cent less than it was in 1921.

At the end of 1924 the trend of prices in all the groups was more or less upward. After the June, 1924, low point, raw materials moved up irregularly and in December were 5.4 per cent higher. Semi-finished commodities, however, held about level during the last five months and in December were only 0.7 per cent above the low point. Finished goods

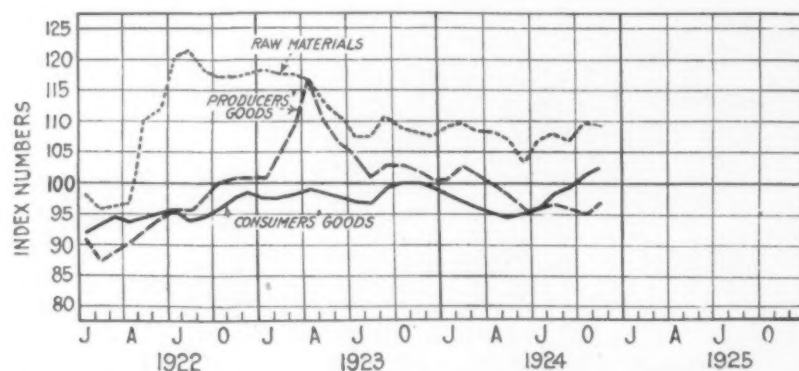


Fig. 1—Relative Trend of Average Prices of Raw, Semi-Finished and Finished Commodities. The price indexes are as compiled by the Federal Reserve Board from the Bureau of Labor Statistics data. Averages for 1921 are 100

consumers' goods. While they are averages and, therefore, do not apply necessarily to any particular industry, they are of great interest as throwing light on the general industrial situation, and particularly on the outlook for profits. It should be noted that raw materials are much influenced by the grains, which have attained extraordinarily high price levels.

A study of Fig. 1 suggests that the producers of raw materials and of finished consumer commodities are in a relatively strong position. On the other hand, the producers of semi-finished commodities occupy a weak position. Such commodities include textiles, yarns, steel billets,

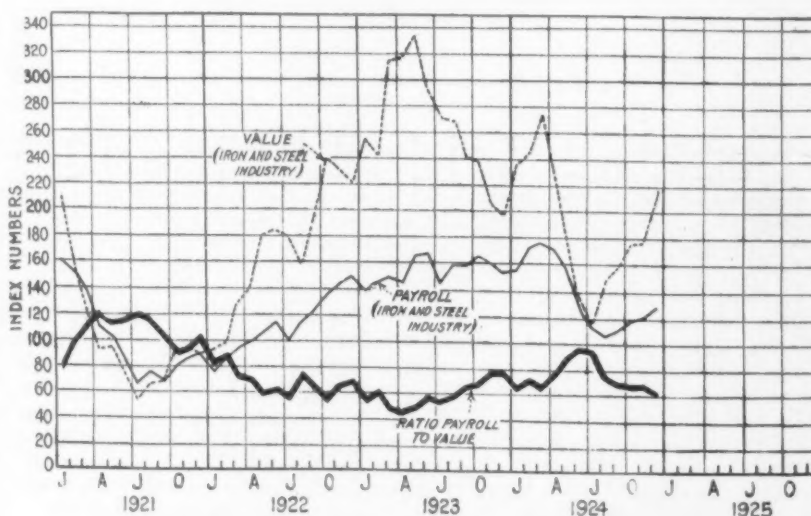


Fig. 2—Comparison of Payroll in the Iron and Steel Industry with the Value of Total Iron and Steel Output

The value of iron and steel is estimated by applying THE IRON AGE composite pig iron price to the monthly production of pig iron and the price of steel billets to the monthly production of steel ingots. Current prices are used which place the figures on a basis of replacement cost. The payroll curve is based on Bureau of Labor Statistics data

*Cost trends a month ago were discussed in the issue of Jan. 8; the trend of iron and steel markets was covered in the issue of Jan. 15; general business was taken up Jan. 22; the employment, earnings and efficiency of labor was the subject of the business analysis installment in the issue of Jan. 29.

stood at the highest point reached in the three years and were 8.7 per cent above the 1924 low point.

Ratio of Payrolls to Value of Iron and Steel Products

IN December the total value of iron and steel produced, estimated on the basis of current prices, increased with extraordinary sharpness, as shown in Fig. 2. This was chiefly due to the increased tonnage output.

Payrolls in the iron and steel industry also increased rather sharply, gaining more than 10 per cent over November. This was the largest increase since February, 1924. The amount of the payrolls, however, was only 0.1 per cent greater than in December, 1923.

Since the gain in payrolls was considerably less than that in the estimated replacement value of the iron and steel produced, the ratio of payrolls to value declined. As a result, it may be inferred that there was a considerably larger margin between the trend of iron and steel sales and the labor item in the cost of production. Apparently the iron and steel industry is headed toward as favorable a ratio of labor costs to value of product as existed in the early part of 1923.

According to the latest Bureau of Labor Statistics data, which are for December, conditions in the basic iron and steel industry are as follows:

Per cent idle.....	3
Per cent operating full time....	51
Per cent operating part time....	46
Average percentage of full-time operation	86
Percentage plants operating at full capacity	27
Percentage operating at part capacity	70
Average percentage of capacity..	79

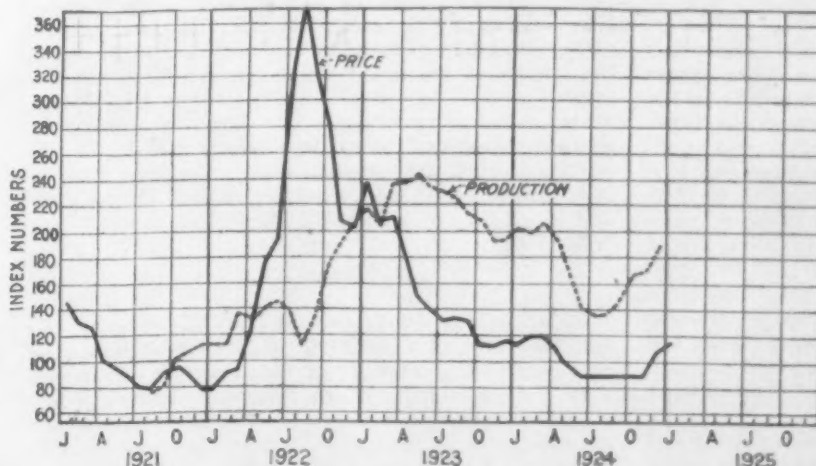


Fig. 4—Coke: Prices and Production

The solid line shows a monthly index of coke prices based on THE IRON AGE Connellsville quotations. The dotted line represents the Geological Survey's figures covering the production of beehive and by-product coke

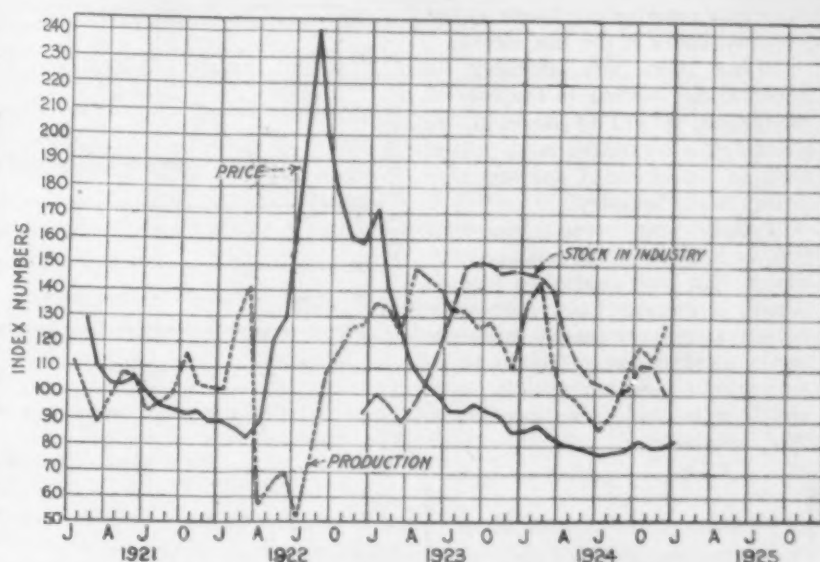


Fig. 3—Bituminous Coal: Price, Production and Industrial Stocks

The solid line shows the course of the Coal Age composite bituminous coal price index. The dotted curve is the monthly production of bituminous coal, estimated from the weekly figures of the Geological Survey and adjusted for seasonal variation. The dashed line represents the movement of industrial stocks of bituminous and anthracite coal, as reported by the National Association of Purchasing Agents

Trends in the Coal Industry

PRODUCTION of bituminous coal continued its advance and has now reached a point near the average of 1923—a peak year. (See Fig. 3.) Prices, on the other hand, although showing a slightly upward trend, have not been very strong recently and have remained at an unusually low level. They are today (as they have been throughout 1924) below what they were in 1921, a year of severely depressed prices.

Coal stocks in industry declined sharply during December, and at the first of this year were lower than at any time since May, 1923. Increased output and declining stocks make it clear that consumption is proceeding at a high rate. With industrial activity at a high level, a continued

high rate of coal production may be expected during the next two months. As the activity of industry nears the peak, however, even if coal production does not increase beyond the December rate, accumulation of stocks is likely to begin.

Although the last two weeks have shown slight declines, prices are at very low levels and have not advanced much relatively to the increase in demand since July. Moderate strength should therefore continue during the winter months.

Coke Situation

PRODUCTION at close to capacity levels, because of over-optimism as to the outlook, has resulted in the inevitable retrenchment. After a period of six months, during which furnace coke prices remained constant at \$3, a rapid climb of 38 per cent in December brought quotations up to \$4.15 and caused producers to speed up to such an extent that it was impossible for either prices or production to be maintained. It should be borne in mind that during the lowest month of 1924 production was still 35 per cent above the 1921 average, and that there has since been an increase of 40 per cent over the July rate. (See Fig. 4.) This created a condition of oversupply in the market, which was followed by sagging prices and sharp curtailment in production. Stocks of coke, reported to be materially reduced, have satisfied to a large degree first quarter needs. Consequently, demand has let up considerably, and this has been an

important contributing factor in the price weakness of the last month.

While there will probably be some further cutting in the rate of production, it will be more in the nature of a corrective move rather than an indication of unsound conditions in the industry.

Prices may ease somewhat further because of the relative oversupply, but, with production tending toward a sounder basis and stocks not excessive, they should soon show returning firmness. The trend of pig iron production in the next month or two will bear watching in this connection.

Foundry and Machine Shop Products: The Labor Situation

THERE has been a slow but steady upturn in the foundry and machine shop industry, as measured by the number employed, since last September. (See Fig. 5.) The gain in activity in this branch of the iron and steel industry has been relatively tardy. In December employment increased 3.2 per cent over November, which is only about the average for the entire iron and steel industry.

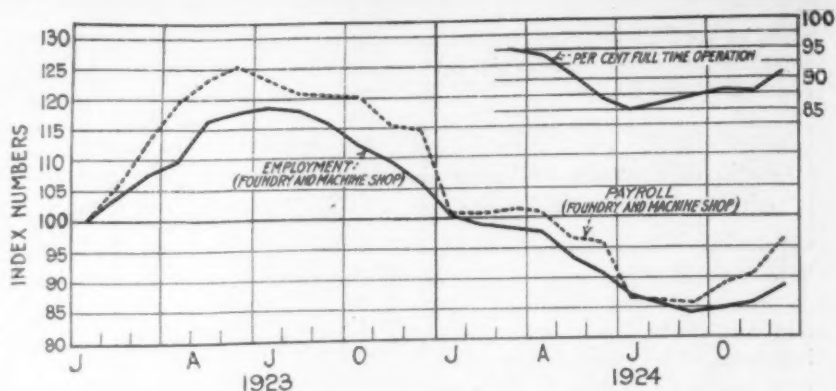


Fig. 5—Labor Conditions in Foundries and Machine Shops

The curves are based on the Bureau of Labor Statistics data and represent chain index numbers starting with January, 1923

The foundry and machine shop products branch of the industry is still at a lower level in comparison with a year ago than any other branch, employment being nearly 16 per cent below December, 1923.

In this section of the industry the decrease in payrolls in the first part of 1924 was checked sooner than in the case of employment, and the rise has been much sharper, amounting to 7 per cent in December. The payroll gain was chiefly due to an increased percentage of full-time operation, but the relatively high level suggests that wages may be a handicap.

Conditions here are quite different from those in the machine tool industry which were presented in the issue of Jan. 8. In the case of machine tools employment held up better than payrolls and the increase in activity not only came earlier but has also been sharper.

Conditions in the foundry and machine shop industry in December are shown by the following figures:

Per cent idle.....	1
Per cent operating full time....	55
Per cent operating part time....	44
Average percentage of full-time operation	91
Percentage plants operating at full capacity	17
Percentage operating at part capacity	82
Average percentage of capacity..	70

The Iron Age, Feb. 5, 1925

New Card of Extras for Hot-Rolled Strip

In a new card of extras dated Feb. 2, which has been adopted by leading makers of hot-rolled strips, the effort plainly is in the direction of placing the charges where they belong, based on producing costs. According to those responsible for the compilation of the new card, which replaces the old one dated April 2, 1923, it is based on time studies of costs covering several years and corrects inequalities which existed in the old extras and which resulted in the appearance of several, instead of one base price for this class of material. Recently, for example, there have been separate base prices for material less than 1-in. wide, for strips 1-in. to 3-in. wide, 3-in. to 10-in. and wider than 10-in.

Taking the entire range of sizes and gages, the average shows little change to the buyer. Size extras are increased substantially in the narrow widths in the new card, particularly in the lighter gages, but over against that, the base limits have been extended to include material 10 in. wide, the old card stopping at 6 in., and the size extras from 3 in. to 6 in. either are left as they were in the old card or slightly reduced, while there are substantial cuts in the extras in the widths of more than 6 in. It is probable that there will be a general adoption of the new card and also that with extra charges assessed in relation with producing costs, based on the practical tests that have been made, there will be a single base price for strips, which would embrace hoops, bands and other flat material of lighter gage than flat bars.

No change from the old card is made in slitting and pickling charges, but the new card advances the extras for cutting \$1 to \$2 a ton and sets up quantity cutting extras, there being separate schedules for cutting lots of 2000 lb. or more, from 1999 to 1500 lb., from 1499 to 1000 lb. from 999 to 500 lb. and less than 500 lb. Regular quantity extras have been raised by from \$2 to \$3 per ton.

U. S. Steel-Carnegie Pension Disbursements

The fourteenth annual report of United States Steel and Carnegie Pension Fund shows that in the year 1924 the sum of \$1,683,920.67 was distributed as pensions among retired employees of the United States Steel Corporation and its subsidiary companies. During the year 843 employees were added to the pension roll and 419 were removed by death. At the close of the year there were 4478 on the pension roll. The average age of the 843 employees retired in 1924 was 64.32 years; their average period of service was 31.63 years, and the average pension, \$41.50. The total amount paid in pensions since the inauguration of the pension plan on Jan. 1, 1911, is \$11,227,156. The beneficiaries of the pension fund make no contributions to the fund, the income of the latter being derived from a fund created jointly by Andrew Carnegie and the United States Steel Corporation. The latter provides also whatever additional money may be required in the administration of the pension plan. The fund applies to all employees of the United States Steel Corporation and its subsidiary companies, numbering approximately 250,000.

The Tin Can Club, composed of executives of the various can manufacturing plants throughout the country, held a meeting in Cincinnati in connection with the convention of the National Canners' Association the week of Jan. 25-31. The club discussed the manufacture of tin cans from all angles. T. W. Howard, Washington, representing the National Chamber of Commerce, spoke on "The Value of Ascertaining Correct Costs in a Tin Can Factory," and Daniel Heekin, Cincinnati, delivered a paper on "Handling Materials in a Can Factory." All the officers of the previous year were reelected. W. D. Trabue, Federal Can Co., Nashville, Tenn., is president.

In This Issue

January pig iron output 108,621 tons per day, less than 3 per cent below the peak last year in March.—Page 430.

Increased production reported as one advantage of factory lunch rooms. Attendance at lunch rooms in plants so equipped averages 41 per cent of the workers.—Page 403.

Accidents reduced 40 per cent by accident prevention competition among Worcester manufacturers.—Page 453.

Machinery exports in 1924 totaled 317 million dollars, a gain of 10 per cent over 1923. December was 12 per cent under November.—Page 456.

Copper and silicon alloy, with yield point up to 56,000 lb. per sq. in., can be machined readily, forged, cast, welded or drawn.—Page 412.

"The steel industry in California is where the citrus fruit industry was 25 years ago." Californians unite to further development of steel industry on Pacific Coast.—Page 409.

Measuring and grading employees at regular intervals in accordance with a definite plan helps to eliminate guesswork in making pay increases, promotions and lay-offs.—Page 451.

Most factory hospitals have too much equipment and look too much like operating rooms, says personnel executive.—Page 451.

Importers of pig iron are active and sales are reported among consumers in the New England States. Unwillingness of foreign mills to book large tonnages of open-hearth steel is an obstacle to much steel import business.—Page 423.

Recent steel buying movement due to building up inventories, says Weirton Steel Co. head. Does not believe actual consumption will be sufficient to justify continuation of 90 per cent steel mill operation.—Page 425.

Trend toward complete industrial integration is promoted by increasing spread between prices of raw materials and finished products.—Page 414.

Employees' magazine costs only \$1.25 per wage earner per year, large manufacturer finds.—Page 451.

Finished steel composite price drops from 2.560 cents lb. to 2.546 cents. Pig iron average price stationary. Copper, tin, lead and zinc prices recedes slightly.—Pages 433 and 450.

Two hundred and fifty-one blast furnaces now active; gain of 23 over Jan. 1 total. Iron-making industry now operating at 84.5 per cent of capacity with 62 per cent of all furnaces in blast.—Page 430.

Steel manufacturer sees no reason for expecting a labor shortage.—Page 426.

Steel Corporation's earnings for 1924 were \$12.85 per ton, larger than in any year since 1910, with exception of three war years.—Page 420.

Foundry and machine shop products division of the metal trades is still at a lower level than any other division, in comparison with a year ago. Employment nearly 16 per cent below December, 1923.—Page 416.

That a 90 per cent steel production rate throughout most of the year is possible, in the opinion of prominent leaders in the industry, states President Campbell of Youngstown. Page 419.

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CONSERVATIVE NAMED

Nomination May Be Beginning of Reorganization of Federal Trade Commission

WASHINGTON, Feb. 3.—The Senate appears to enjoy toying with appointments of President Coolidge to such a degree that it is difficult to say what it may do with regard to confirmations. But it is believed that after getting what it may think is the greatest political advantage out of the situation, the Senate is expected to confirm most of the appointees selected by the President, including Attorney-General Harlan F. Stone, named to be a member of the Supreme Court of the United States.

It is also thought that the Senate will confirm the name of former Representative William E. Humphrey, Republican, of the State of Washington, as a member of the Federal Trade Commission to succeed Nelson B. Gaskill. The opposition to Mr. Gaskill came from a Senator who made the curious charge that Mr. Gaskill was rated as an "extreme radical." Those who know Mr. Gaskill and are acquainted with his work declare that such a charge is absurd. They confidently believed that Mr. Gaskill would be confirmed for reappointment by the Senate, the President having given him a recess appointment. Surprise was expressed when it was learned that his name had finally been withdrawn and that of Mr. Humphrey sent to the Senate by the President.

MAY ABANDON PLANT

American Steel & Wire Co. Will Probably Not Again Operate Schoenberger Works—Horseshoe Business Sold

Official announcement has been made by the American Steel & Wire Co. of the sale of its horseshoe plant and business to the Phoenix Horseshoe Co., Chicago. The only plant of the American Steel & Wire Co. at which horseshoes are made is the Schoenberger works at Pittsburgh, but as that plant has been idle, except in the horseshoe department since April, 1924, and as there has been no denial of a report that the plant was to be abandoned, it is believed that the sale merely applies to the equipment and good will. In other words, the Phoenix Horseshoe Co. instead of the American Steel & Wire Co. will make and market the Juniata brand of shoes and calks.

The report has been current for some time that the American Steel & Wire Co. never again would operate the Schoenberger works, but an official announcement to this effect has been withheld, probably because of a desire to work out plans for extensions at other plants to make good the loss of production through the abandonment of the Schoenberger works. It is reported that the Pennsylvania Railroad wants the Schoenberger property in connection with its program of extending its terminal facilities in Pittsburgh and the American Steel & Wire Co. either has sold or will soon sell the property to that road.

The plant is one of the oldest in the country and probably the oldest in Pittsburgh, having been started more than a 100 years ago and came into the possession of the American Steel & Wire Co. about 25 years ago when so many mergers were being made in the steel industry. It afforded no opportunity for enlargement and if any such plans had been considered, they were defeated by the fact that the property is in the city and city taxes are very high and add materially to manufacturing costs, especially when the land valuation is high, as it is in the case of the downtown location of the Schoenberger works. Land within the city corporate limits is regarded as too valuable for industrial uses and with the tax rate high and based on high valuations, the prime reason for the abandonment of this plant is provided.

Mr. Humphrey is known as a conservative Republican. He served in the House of Representatives for a long term of years, is a high protectionist, and his record shows that he was always a regular Republican. Since leaving Congress several years ago, he has been practicing law in Washington. His appointment emphasizes the growing belief that the President already has begun reorganization of the Federal Trade Commission so as to convert it into a more conservative organization and that reorganization for improvement in the work of the Tariff Commission and the Shipping Board will follow soon.

In this connection, considerable interest was aroused in the action of the House in adopting an amendment to the independent offices appropriation bill, which would eliminate the Tariff Commission. The amendment struck from the measure an appropriation of \$712,000 for the commission. This was done through quick action of Democrats during the absence from the floor of a large majority of the Republicans. The latter were caught off guard. The action was not taken with a great amount of seriousness because it was predicted at the time that the appropriation for the Tariff Commission would be reinserted in the measure. At the same time, it was significant and no doubt reflected to a large extent the opinion of the country at large that the Tariff Commission has not functioned satisfactorily; that its work has been characterized by a great deal of political strife and inability to agree upon policies.

High land valuations and high taxes caused the Carnegie Steel Co. to dismantle one of its mill plants in Pittsburgh when the lease of the land expired. It is said that other plants of this company in the city will be moved elsewhere for the same reason with the termination of the land leases.

President Campbell Sees No Unfavorable Indications

YOUNGSTOWN, Feb. 3.—President James A. Campbell of the Youngstown Sheet & Tube Co. is optimistic with respect to business in 1925 for the steel industry, stating prominent leaders are of the opinion that maintenance of a 90 per cent production rate throughout most of the year is possible. "I am more conservative," he adds, "but I believe that the demand for steel from all sources will be satisfactory and I do not see anything at present which could be regarded as an unfavorable sign."

Mr. Campbell's statement with reference to the industry was issued following a visit of two weeks in New York, during which he conferred with bankers and leading executives and attended a meeting of directors of the American Iron and Steel Institute. He stresses improvement in the oil industry as one reason why there should be improved buying of pipe and plates, and other steel products used in the oil country. Indications point to more active oil well drilling and pipe line construction, he explains.

Mr. Campbell states it is unlikely that rolled steel buying for the second quarter will be as heavy as that for the first quarter of the year, because consumers bought at cheap prices for this quarter's delivery in excess of their requirements.

The Tool Salvage Co., Detroit, reconditioner of drills, reamers and millers, has been entirely reorganized and control of the company transferred from H. H. LaVercomb to a group of Detroit men headed by Frank E. Price, who for several years has been Michigan sales manager for the Elwell-Parker truck. N. J. Chapoton, formerly master mechanic of Northway Motor Co. and before that superintendent of tools at Dodge Brothers, has become general manager. The company is receiving a large amount of business from the motor producers and on Feb. 4 put on a night shift.

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Steel Earnings in 1924

THE United States Steel Corporation's earnings in 1924, after payment of subsidiary company bond interest, were \$152,937,130. Estimating its shipments of steel products for sale at 11,900,000 tons, the earnings per ton were \$12.85. Much has been written about this method of computing profits per ton of steel, and it has been represented that the Steel Corporation has important profits from its railroads, the manufacture of cement, fertilizer and zinc, and from coking by-products. Corresponding attention is not given to the partly offsetting fact that the corporation disposes of nearly three-quarters of a million tons of billets, sheet bars, etc., on which further profits would be realized if they were finished at home.

To realize even its moderate profits, however, the Steel Corporation has to do practically everything itself—mine nearly all its coal, make all its coke, produce all its iron ore and move nearly all of it over its own rail and water transportation lines, secure all the profit it can from coke by-products and then carry its steel to a high average degree of finish, making a very complete line of wire products and fabricating nearly half a million tons of structural work.

This vertical integration is not only a matter of addition; it involves economies. If similar operations were conducted by several successive companies, merely chancing to form links in the one chain by getting together in the open market in sales and purchases, there would be expenses of selling and buying and of carrying stocks which the corporation does not have. Its savings in the respects mentioned have been estimated at \$3 or \$4 a ton. Putting them at \$3, there would be scarcely \$10 per ton, in the case of last year, to be distributed to individual links in the chain. That sum does not lend itself to anything like a fair apportionment to the various operations, ore and coal mining, transportation, coke making, blast furnace and steel mill operation and finishing.

Compared with its predecessors, 1924 did better in total earnings than in earnings per ton. In

total earnings only six years were larger. Half of these were war years and of the other three only one, 1920, was recent, two being 1906 and 1907, when a great many conditions were different.

Taking the per ton earnings of 1924 at \$12.85, there were 11 years which showed larger earnings and 12 that showed smaller, but 8 of the 11 fell in the first nine years of the corporation's existence and the other three were war years. That is, the earnings per ton were larger in 1924 than in any year since 1910, with the exception of the three war years 1916, 1917 and 1918.

This point is decidedly noteworthy. It would be remarkable for 1924 to equal 1923 in per ton earnings, but it seems to have passed it by a small margin, for 1923 was a year of well-sustained prices and 1924 one of falling prices, while the decrease in tonnage would naturally raise production cost, and late in 1923 the 12-hour shift was abolished and labor cost per hour was considerably increased on many jobs. Two reasons may be suggested—that the corporation operated still more efficiently in 1924 and that it delivered much steel, including steel for construction work, which did not reflect the lower open market price at the time of delivery. The increase in earnings per ton was only slight. In 1923, with earnings of \$179,646,674 and steel shipments of 14,373,822 tons, the per ton earnings were \$12.50.

PUTTING machine tools in a plant so that the prospective purchaser may run competitive trials is evidently not obsolete, for the executive office of the National Machine Tool Builders' Association has emphasized in a recent bulletin the demoralizing results of the practice. The "prospect" pays nothing for the transportation, setting up or operation of test machines, and the fact that those which lose out are regarded thereafter as in the second-hand class is not his concern—on the face of things. But that is not the whole story. If many buyers followed the practice it would inevitably lead to the asking of higher prices by such makers as were able to

weather the storm. In the long run it is the consumer who pays the accumulated bills of uneconomic competition.

Steel Demand by Processes

OCCASIONALLY the steel market passes through a period in which Bessemer steel is available at lower prices than open-hearth. A little symptom of this sort became visible a few weeks ago in the case of sheet bars. Since the great majority of consumers have a definite preference for steel made by one process or another, it is remarkable that such developments are not more frequent. It is normal for the steel finishing capacity of the industry to exceed the steel ingot producing capacity. Thus if demand for steel rises to a capacity rate it is the ingot capacity that is reached rather than the finishing capacity, except that finishing capacity in one line may be taxed when perhaps there is relatively little demand for some other finished product.

The year 1923 was one of such heavy output that natural preferences of steel buyers were well disclosed, and a comparison of ingot production in relation to ingot capacity shows that the strong preference was for basic open-hearth steel. The steel-making trade had been well informed as to changing preferences of buyers and had built accordingly. A very interesting presentation is made by setting together the percentage increases in capacity from 1913 to 1923, and the production in 1923 in percentage of existing capacity, as follows:

Steel Ingots		
	Capacity Increase, Per Cent	1923 Output to Capacity, Per Cent
Basic open-hearth.....	76	80
Acid open-hearth.....	24	46
Bessemer.....	-3	71
Crucible.....	-19	24
Electric.....	1078	35
All forms.....	50	77

Excepting the case of electric steel, these figures hang very well together. Production of Bessemer steel was only 71 per cent of rated capacity, and the capacity had not been increased in ten years, there being instead a decrease of 3 per cent. Production of crucible steel was only 24 per cent of capacity, and that capacity represented a decrease of 19 per cent. Basic open-hearth steel capacity showed the highest employment, 80 per cent, and the capacity had had the large increase of 76 per cent in ten years.

These three cases are fairly representative of a rule, that steel interests built with an eye to demand. When the preference was waning there was more abandonment than fresh building.

Acid open-hearth steel appears to present a slight exception, as in ten years there was a 24 per cent increase in capacity, yet with only 46 per cent employment in 1923. The explanation of this lies in the war. There was a 41 per cent increase in capacity from 1913 to 1917, and then a 12 per cent decrease. If there had been no war, the steel industry would probably have reached 1923 with a capacity closely related to the actual demand.

Electric steel furnishes a more extreme case still. Capacity increased from 67,900 tons in 1913 to 781,320 tons in 1919 and then decreased to 704,190 tons in 1922, increasing during 1923 to

798,035 tons. With no war, the capacity would have increased greatly, but would not have been multiplied almost a dozen times, and the 1923 capacity would have found pretty full employment, for 279,914 tons of electric steel ingots were made in 1923, while the nominal capacity in 1913 was 67,900 tons.

There is greater steel-making capacity today than seems necessary for present requirements, but the excess lies largely in Bessemer steel, for which there has been waning demand, and in acid open-hearth and electric steel in which the war furnished a special demand at a level which peacetime requirements have not yet attained. Concerning the Bessemer steel capacity, it is to be said that some of it is given a separate rating, whereas its only probable chance of activity is in duplexing for the production of open-hearth steel.

Building Up Good Will

DURING the period of large earnings of manufacturers in war time and later, extraordinary, if not extravagant, appropriations were made for personnel departments. With the rapid decrease in earnings which came later, there was sharp reduction of expenditures for those departments and an erroneous impression has been created that little is being done to promote the well being of employees. Careful investigation has shown, however, that the forward movement was only halted and that quietly and more efficiently than ever the good work is going on.

In a recent issue of THE IRON AGE a writer on "Vacation Plans for Wage Workers" stated that probably at no other time have American industrialists been so keenly in quest of personnel policies of proved value as at the present time, and he gave the result of questionnaires and plant visitations showing the thoroughly thought-out plans which have been adopted for vacations for workers. Even more significant than the statistics presented were the enthusiastic statements of manufacturers as to the benefits which workers had derived from the vacation plans.

Other painstaking investigations of the year have furnished convincing proof of progress in the organization of shop committees and it is now estimated that the number has more than trebled since the war, while the number of companies that have adopted shop committee plans and later abandoned them is significant. In a recent article in the *Survey*, Ordway Tead expressed the opinion that personnel work in its fundamental sense is not on the decline and "has never been more dynamic than at this hour." A report just issued by the National Industrial Conference Board states that more than 800 works councils or employee representation plans, covering more than a million workmen are now in operation in the United States.

Naturally, as methods of preventing accidents have become standardized, the safety movement has attracted less attention, but it never was more efficient than now, and the conferences held from time to time by the National Safety Council and other organizations were never more practical and helpful. Among the unique develop-

ments of the movement is the attractive safety calendar of the Carnegie Steel Co. Even as small a thing as a calendar can be an indication of really human sympathy and of ingenuity in enlisting people in a good cause. The illustrations of the calendar for this year were selected from more than 7600 posters made by children in the industrial districts where iron and steel are manufactured. That lives will be saved and countless minor accidents prevented by the interest aroused in the contest in the drawings of the posters can not be doubted, even if the exact results can not be determined.

Within the past few weeks the newspapers have had almost daily items telling of the more cordial relations established by the selling of stock to employees and other plans for bringing workers into closer connection with the employers.

To an increased extent house organs are devoting space to subjects which give a broader view and loftier ambition to readers. For example, the little paper *United Effort*, published by a Pittsburgh company, contains in every issue evidence that the president of the company is giving a large amount of his time and thought to the articles which he contributes. The one in the November number entitled "Work—Our Burden?" is a scathing rebuke to everybody, including a few preachers, who does not look upon work as a privilege and a joy.

The above are only some of the evidences that additions are steadily being made to the stock of good-will that is minimizing the number of serious disagreements between employers and employees. History teaches, to be sure, that they are no guaranty that the peace will not be broken, but they are cumulative testimony against the radical preaching of an essential antagonism in industrial relations.

Low Ebb in Steel Exports

WITH a falling off in our iron and steel exports of about 10 per cent from 1923, last year's record was the poorest since the war. At 1,782,421 gross tons, the 1924 total was nearly 35 per cent under that of 1913. The unfavorable showing is emphasized by the fact that exports of scrap last year were 50 per cent larger than in 1923. Deducting scrap the 1924 shipments were 12 per cent under those of the year previous. Compared with the high record since the war—

4,239,837 tons in 1919—our shipments to foreign countries last year fell off more than 58 per cent.

It was to be expected that the American steel industry, with an output of more than half the world's total, would lose a large part of its war-time export trade when other steel-producing countries settled down to peace-time production. There may be surprise in some quarters, however, that in a year like 1924 we should fall more than 1,000,000 tons below the 2,850,000 tons average for the two pre-war years 1912 and 1913. Yet to those who have been measuring the effect of the steady advance in steel-making costs in the United States, due to high freight rates, inordinately high coal, and the highest labor costs the country has ever known, saying nothing of the depreciated money of Europe, there is no mystery about the inability of American steel manufacturers to compete in distant markets with the products of European plants. The curtailment of our export trade in steel was repeatedly pointed out in these columns as a likely effect of raising coal mining, railroad and steel works labor costs in the United States to levels out of all relation to the moderate advances made in other lines.

As the world's buying power increases, with recovery from the prostration of war, the tendency will be toward equalizing costs in the steel-producing countries. Under such conditions the United States might be expected to improve upon the position in the international steel trade into which the peculiarly unfavorable developments of the past two years have forced it.

AN impressive illustration of the cost of railroad operations is afforded by the annual figures of the expense in providing railroad service by the New York Central Railroad for the year ended Oct. 31, 1924, recently made public in detail. That company's distribution of the dollar shows that 41.6 cents went for labor and 14.5 cents for all material and supplies. With these as the two largest items, the labor cost was nearly three times the outlay for steel and other materials. Thus, to sell \$607,000,000 worth of freight, passenger and other railroad service, the year's total business, the New York Central paid for labor and materials 56 per cent of its total outlay. Before the war such costs would have staggered any railroad management; but the days of Government control and of political fixing of wage scales had not yet come.

INLAND STEEL CO. ADDITIONS

Contract in for Blast Furnace—Total Expenditure Will Be \$7,500,000

CHICAGO, Feb. 3.—The Inland Steel Co., Chicago, will spend \$7,500,000 this year on improvements at its Indiana Harbor, Ind., plant. Complete details regarding the program are not yet available. An additional blast furnace will be constructed and the contract has just been awarded to the Riter-Conley Co., Pittsburgh, calling for 3000 tons of structural steel. Other improvements under consideration include a battery of 30 coke ovens, dock additions, and electrification of various mills. Works additions completed last year embraced four open-hearth furnaces, a billet mill and merchant bar mill.

The Phoenix Horseshoe Co., Chicago, which recently purchased the horseshoe department of the American Steel & Wire Co. which was located in the Schoenberger plant, Pittsburgh, will probably move the machinery as well as many employees to its works at Cleves, Ohio, which operates under the name of the Cincinnati Horseshoe Co. There the manufacture of the Juniata line of horseshoes will be continued.

The Birmingham Machine & Foundry Co., Birmingham, Ala., is manufacturing pumps for gasoline filling stations. These pumps heretofore have been made exclusively in the North. This foundry is also working on an iron and steel cotton press for Moscow, Russia, the press to weigh 28,000 lb.

OUTLOOK FAVORABLE

President Warner, Trumbull Steel Co., Expects 1925 to Be Much Better Than Last Year

YOUNGSTOWN, Feb. 3.—In his annual statement to stockholders of the Trumbull Steel Co., at Warren, this afternoon, President Jonathan Warner declared the outlook for 1925 is very favorable, saying, "Many leaders in the industry believe that 1925 will be one of increasing volume, and they are optimistic over the future—more so than for many years past, because of the strong underlying conditions, and we, here, share this opinion."

In January, this year, the company established a new monthly record for production and shipments, turning out 43,400 tons of rolled steel and shipping 42,335 tons. The company's 1924 report was not so favorable as that for 1923. Gross sales were \$26,201,521, compared with \$31,205,614 in 1923. The payroll, however, advanced from \$7,743,000 in 1923, to \$8,502,032 in 1924.

Steel ingot output in 1924 was 404,669 tons against 448,129 the previous year. The company produced last year 344,106 tons of finished steel and shipped 339,211 tons. Its 1923 rolled steel shipments were 359,000 tons.

Major products shipped last year include 175,969 tons of sheets, 168,137 tons of hot rolled strips and 33,235 tons of cold strip, and 943,332 base boxes of tin plate.

"The past year was one of the worst I ever experienced in the industry," stated President Warner. "Busi-

ness fell to a low level and costs were at times \$1 to \$4 a ton above sales prices."

Mr. Warner states that he does not expect competition from European makers to be serious in the lighter steel products. He estimated the use of blast furnace gas in steel-making effected a saving of 2c. per ton. The only major extension which the company may make in the near future is five additional open-hearth furnaces, which would likely be financed from earnings. Last year the company expended \$500,000 in improvements, including rebuilding of its steam power equipment. In 1924 it sold its interest in the Atlantic Can Co., Baltimore, Md. It owns a half interest in an iron ore reserve of 11,500,000 tons and has a coal reserve in Pennsylvania sufficient for about 25 years' normal operations.

The blast furnace of the Trumbull-Cliffs Furnace Co. last year produced 226,000 tons of pig iron, against 254,202 tons in 1923. It was idle 60 days in 1924.

Net earnings in 1924, after Federal taxes and charges, amounted to \$2,243,888, equivalent after preferred dividends to \$2.46 per share of outstanding common stock. The company paid dividends last year on common stock at the rate of \$1.40 per share.

From 1924 operations the company added \$476,923 to surplus, bringing this item as of Dec. 31 to \$10,611,416. Its aggregate depreciation and repair charges in a seven-year period total \$16,198,921, and it has paid to date \$11,584,613 in cash dividends.

The balance sheet shows current assets of \$18,243,447, against current liabilities of \$8,244,659.

IMPORTERS OF STEEL ACTIVE

Some Rails Sold—Ford Purchase Reported Not Entirely Closed—Japan Buys Tin Plate

NEW YORK, Feb. 3.—Although the total tonnage of purchases of foreign steel has been thus far evidently small, importing into the United States is attracting more attention at present than the export business.

Japan continues to inquire for small tonnages of material and some business is being transacted. Although the domestic market is advancing, export prices have shown little upward movement, except for black sheets and tin plates. Tin plate is now quotable at about \$6.30 per base box, c.i.f. Japan, the price fluctuating with the exchange rate on the pound sterling. Black sheets are generally at about \$101 per ton, c.i.f. Japan, a price that figures back to about 3.60c. per lb. base, Pittsburgh, practically equivalent to the current domestic market. Bars, shapes and plates, however, continue to be quoted at prices figuring back to considerably less than the domestic price. Recent quotations seem to establish the export price at about \$49 per ton, c.i.f. Japan, on bars and shapes, or a price corresponding to about 1.65c. to 1.70c. per lb., Pittsburgh. The most recent sizable purchase from Japan was that of the Nippon Oil Co., which closed on 40,000 tons of tin plate with two exporters, reported to be Mitsui & Co. and Iwai & Co., New York.

Importers in the United States continue their recent activity in offering Continental material and there is evidently a growing interest on the part of consumers. While the greater part of the business thus far transacted seems to be confined to sales of pig iron and some steel to users in the New England district, the area of competition extends all along the Atlantic coast and the Gulf of Mexico. Cast iron gas and water pipe is selling into the New England States at \$2 to as much as \$5 per ton under the domestic market. Thus far sales have been confined to purchases by private users, but representatives of the Pont-a-Mousson works in the United States are among the bidders on most of the municipal inquiries that appear.

While there is quite evidently interest among the users of rails in the possibility of obtaining the European product, sales have been somewhat restricted. A recent transaction reported by a large importer of pig iron and steel products included 1200 tons of 75-lb. rails to a railroad in the South. Reports that various

railroads are negotiating for Continental rails are numerous, but in most instances cannot be substantiated. Among the railroads mentioned as willing to consider foreign rails are the Boston & Maine and the New York, New Haven & Hartford. It is claimed that, although the tonnage of rails placed by the Ford company recently was closed here, part of this tonnage has not as yet been placed with European mills. The greater part is understood to have gone to the Providence works, Belgium.

It is pointed out by importers that an obstacle to any large business with European mills is the unwillingness of Continental sellers, particularly German, to book large tonnages of open-hearth material. Various consumers of semi-finished material are reported interested in obtaining prices on open-hearth billets, but thus far only small lots have been sold. An inquiry in the market for a total of 7000 tons of reinforcing bars for sewer construction, to be delivered over a period of two years, has been considered by European mills, American mills incidentally not being interested because of the delivery period, and importers have with difficulty obtained quotations on as much as 1000 to 2000 tons.

While it is apparent that some business will be done by the American consumers with European mills, as a result of the attitude of the foreign seller, most of this will probably be confined to small lots of finished products. Pig iron is the only exception. Importers of pig iron are active and numerous sales are reported to have been made to consumers in the New England district, who, it is claimed, are inclined to suspend shipment on their domestic contracts in order to take in the lower priced foreign iron. It is understood that two companies are in a position to quote direct from the one furnace in Holland and one company importing German pig iron from the five blast furnaces of the Lubeck company at Kiel. Two of these furnaces are producing export pig iron exclusively and three are on German domestic production.

Contracts have been let by the Endicott Forging & Mfg. Co., Inc., manufacturer of drop forgings, Endicott, N. Y., for additions to its forge plant. Orders have been placed for furnaces for the new heat treating department just completed and steel work for the die storage has been placed with the Binghamton Foundry Machine Co. Steel for the addition to the forge plant has been placed with the Binghamton Bridge Co.

INCREASE IN ACTIVE STACKS

Pittsburgh District Has Five More Active Furnaces Than a Month Ago

PITTSBURGH, Feb. 2.—Five more blast furnaces are in production in this and nearby districts than a month ago, while as compared with a year ago, the present number of active furnaces shows an increase of two. Blast furnace operations have shown a steady gain since last July, when only 57 were producing of the 139 in the area embraced. Weakness in the pig iron market probably means that there will be no immediate additions to the number of active merchant stacks and, unless the present downward slant of scrap prices is only temporary, it is doubtful if the steel companies will put on idle blast furnaces, as prices a little below present levels would be conducive to increasing the amount of scrap in the mix.

The Pittsburgh district proper has added three furnaces in the past month and in the Mahoning and Shenango valleys there has been a net gain of four furnaces. Wheeling and western Pennsylvania districts each has lost one furnace.

The record of the furnaces in and out of production as of today with comparisons follow:

Mahoning and Shenango Valley Districts STEEL WORKS FURNACES						
	Feb. 2, 1925			Jan. 5, 1925		Feb. 5, 1924
	Total	In	Out	In	Out	In Out
Carnegie Steel Co.						
Farrell	3	3	0	3	0	3 0
New Castle	4	4	0	3	1	3 1
Niles	1	0	1	0	1	0 1
Ohio	6	6	0	4	2	6 0
Sharon	1	0	1	0	1	0 1
Republic Iron & Steel Co.	7	4	3	5	2	4 3
Sharon Steel Hoop Co.	1	1	0	1	0	1 0
Trumbull-Cliffs Furnace Co.	1	1	0	1	0	1 0
Youngstown Sheet & Tube Co.	9	8	1	6	3	7 2
MERCHANT FURNACES						
A. M. Byers Co.	1	1	0	1	0	1 0
Hanna Furnace Co.						
West Middlesex	1	0	1	0	1	0 1
Leetonia, Ohio	1	1	0	1	0	1 0
Dover, Ohio	1	1	0	1	0	1 0
Reliance Coke & Furnace Co.						
West Middlesex	1	0	1	0	1	0 1
Sharpsville, Pa.	1	1	0	1	0	0 1
McKeesport Iron Co.	1	1	0	1	0	0 1
Sharpsville Furnace Co.	1	1	0	1	0	0 1
Shenango Furnace Co.	2	2	0	2	0	1 1
Struthers Furnace Co.	1	0	1	0	1	1 0
Stewart Furnace Co.	1	1	0	1	0	1 0
Valley Mold & Iron Corporation	1	0	1	0	1	0 1
Total	46	35	11	31	15	31 15

Pittsburgh District STEEL WORKS FURNACES

	Feb. 2, 1925			Jan. 5, 1925		Feb. 5, 1924
	Total	In	Out	In	Out	In Out
American Steel & Wire Co.						
Donora	2	1	1	1	1	1 1
Shoenberger	2	0	2	0	2	2 0
Carnegie Steel Co.						
Carrie	7	7	0	7	0	7 0
Clairton	3	3	0	3	0	3 0
Duquesne	6	5	1	4	2	5 1
Edgar Thomson	11	11	0	10	1	10 1
Edith	1	0	1	0	1	0 1
Isabella	3	3	0	2	1	3 0
Lucy	2	2	0	2	0	2 0
Neville	1	0	1	0	1	1 0
Jones & Laughlin Steel Corporation						
Alliquippa	5	5	0	5	0	5 0
Eliza	6	6	0	6	0	5 1
Soho	1	0	1	0	1	0 1
National Tube Co.	4	4	0	4	0	4 0
Pittsburgh Crucible Steel Co.	2	2	0	2	0	2 0
Pittsburgh Steel Co.	2	2	0	2	0	1 1
MERCHANT FURNACES						
Clinton Iron & Steel Co.	1	1	0	1	0	0 1
Total	59	52	7	49	10	51 8

Western Pennsylvania STEEL WORKS FURNACES

Bethlehem Steel Co.						
Johnstown, Pa.	11	7	4	8	3	6 5
MERCHANT FURNACES						
Adrian Furnace Co.	1	0	1	0	1	1 0
American Manganese Mfg. Co.	2	0	2	0	2	0 2
Kittanning Iron & Steel Mfg. Co.	1	0	1	0	1	0 1
McKinney Steel Co.						
Scottdale, Pa.	1	1	0	1	0	1 0
Josephine, Pa.	2	0	2	0	2	2 0
Perry Iron Co.	1	1	0	1	0	0 1
Punxsutawney Furnace Co.	1	0	1	0	1	1 0
Total	20	9	11	10	11	9 9

Wheeling District STEEL WORKS FURNACES

Carnegie Steel Co.						
Bellaire, Ohio	2	2	0	2	0	2 0
Mingo, Ohio	4	3	1	3	1	3 1
Steubenville, Ohio	1	0	1	0	1	0 1
National Tube Co.	2	1	1	1	1	2 0
Wheeling Steel Corporation	4	3	1	4	0	3 1
Weirton Steel Co.	1	1	0	1	0	1 0
Total	14	10	4	11	3	11 3
Grand total	139	106	33	101	38	104 35

POLAND ONLY HALF EMPLOYED

Depression in Iron Industry—Polish Iron Syndicate Forming

WARSAW, POLAND, Jan. 13.—The Polish Upper Silesian iron industry is poorly employed. With the cessation of building activities, demand for iron products slackened and as the railroad authorities are placing few orders, the works are employing only about 50 per cent of their normal number of men. An improvement is expected during the first few months of 1925, especially as wholesalers' stocks are largely depleted. As about 60 per cent of the iron exports are going to Germany, the question of the import taxes that may be levied on Polish iron goods after June 15, when the privilege of free importation into Germany expires, soon will become acute. Naturally the industry is endeavoring to get a prolongation of the privilege. Negotiations have been started, also, by the Upper Silesian iron masters to form, together with the manufacturers in the other parts of Poland, a syndicate which would dispose of the entire Polish iron production, but no definite result has been reached.

Polish coal production has been reduced, as it is largely in excess of demand, though the home market has been more active lately. Danzig and Czecho-Slo-

vakian demand for Polish coal has increased, while exports to the other markets meets with difficulties, owing to the high freight rates. About 550,000 tons per month are exported to Germany, and between 200,000 and 300,000 tons to Austria. On account of the 8 per cent increase in miners' wages, the coal prices have been raised correspondingly, but the government is trying to lower them again and negotiations have been started with the owners, who demand in exchange a decrease in the tax on turnover and other concessions.

During 1924 the Polish Upper Silesian iron works imported about 155,000 tons of Swedish ore, 18,000 tons of Spanish and 5000 tons each of Czecho-Slovakian and Jugo-Slavian ore. The production of the Upper Silesian ore mines amounted to about 60,000 tons of brown hematite.

Boiler equipment at the Farrell, Pa., works of the Carnegie Steel Co. is to be replaced, an appropriation for this purpose having been made by the United States Steel Corporation. Sixteen 800-hp. boilers will be installed, in four separate units. Work of dismantling the old boilers, which were in use 25 years, has started. It is estimated the installation will require one year or longer. The Trumbull Steel Co. at Warren is also installing new boiler equipment at its Trumbull works.

President Weir Reviews Business Facts

Places Large Responsibility Upon Manufacturers and Others Closely Connected with Iron and Steel Industries—Urges Importance of Reducing Costs

SHARING none of the ultra optimism of some observers as to business outlook for 1925, but at the same time holding a firm belief in a good normal operation and reasonable profits, E. T. Weir, president Weirton Steel Co., Weirton, W. Va., has written for THE IRON AGE an interesting review and outlook of the steel situation. He holds that frequent and wide fluctuations in the industry are not productive of even reasonable profits on the average, and says that the responsibility for the establishment of steady operations rests upon those within the industry. The recent big buying movement he regards as partly a stocking movement in keeping with belief in good business. He believes the advance in raw materials has been too great. He sees no shortage of labor and insists that profits will be assured more through reductions in costs than through selling prices, believing that too great an increase in prices will check the demand. Mr. Weir says:

"At no time since the pre-war period has the steel industry been on what we could consider a normal basis. During the war we had most unusual demands, caused by the upset conditions of the entire world. Following the war we had a tremendous expansion in 1919 and part of 1920, a great boom, then of course a total collapse. Since that time we have had several periods, short at best, of unusual activity and then reactions. During 1924 we had almost 100 per cent operation for the first quarter and advancing prices, then a decided reaction, going down to 40 per cent production in July, then an upward movement, ending the year with approximately 80 per cent.

One of the Worst Problems

"These constant and wide fluctuations represent one of the worst problems we have in the steel industry, and we all know that they are not productive of even reasonable profits on the average. To a considerable extent the responsibility rests upon the people within the industry, those associated in allied lines, the trade papers and the newspapers. As soon as business promises to get better there is a great hurrah and the feeling is that we are bound to have another boom; the sales people talk it, the newspapers feature it and unfortunately some of the trade papers also. I am glad to say that I do not think this applies to the two leading periodicals that deal with the steel industry.

"We have just had a very heavy buying movement, the mills have practically sold their production for the first quarter of the year and are running actively. Unquestionably a certain amount of this production will go into stocks throughout the country because all buyers feel that their business will be better, which will necessitate carrying larger inventories. When these inventories are built up to normal, the demand necessarily will be lessened on the mills and we will get from day to day only the actual consuming requirements of the country. That this is going to be large enough to justify 90 per cent operation of the steel mills I do not believe. As to what lower percentage will be continued over the second quarter and the last half of the year I would not care to predict, but I do believe that the consuming demand will be such that the mills will have no trouble whatever in taking care

of it promptly and with considerably under 90 per cent operation.

Some Advances Too Rapid

"There has been a disposition to advance prices of raw materials, particularly, beyond what is normal and natural, and beyond what can be sustained. There is among the buyers of the country a conservative analysis of conditions that has not existed since before the war; they will not be run off their feet by talk of advancing prices, and when an increase they consider too great is inaugurated, they will begin to cut down on their buying, decrease their inventories, taking away from the mills the specifications that they need to keep operating regularly.

"The great requirement in the steel industry is to have normal demand for their products all the time, not have 100 per cent for three months, then 60 per cent or less for the next three months, but to have a demand regularly equal to the consumption going on in the country. This can be accomplished if we are conservative in our prices and follow out the principle of making earnings out of economies and regular operation, and not from high prices.

Profits from Low Costs

"I firmly believe that the profits to be made will come from low costs, the introduction of every possible economy, the elimination of wide fluctuations and regular operation through the maintenance of very reasonable selling prices. This regular operation allows the mill management to secure reductions in cost that cannot be obtained through the wide fluctuations that we have had in the past.

"I deplore the disposition, particularly on the part of those engaged in the sale of raw materials and metals, who feel that there is no limit to the price they can secure. For instance, the scrap dealer feels that because he can sell scrap at \$22 he will get \$24 or \$25; the seller of spelter thinks the same thing, because he can get 7½c. per lb. that he will get 8½c., and so on throughout the list. These conditions, of course, do not exist to the same extent in finished materials, but they do have their effect ultimately in influencing the considerations of both sellers and buyers.

What Is Most Needed

"What we in the steel industry particularly need is to get costs down and be able to maintain moderate selling prices, and in this way build up a further demand for our products. Regularity of operation, economy, low costs and consequently low selling prices, mean building up the demand and the carrying on of our business on a normal basis month in and month out.

"That the fundamentals for good business in 1925 are established goes without saying, but there is nothing there that justifies a boom or anything to my mind except legitimate competitive business, with sufficient tonnage to allow us all good normal operation and reasonable profits. This will produce an average for the year far better than any temporary period of boom.

"Regarding the labor situation, I am not at all in

sympathy with the idea that there is going to be a labor shortage because I believe that we have ample labor in the country to produce regularly all the material that is necessary to take care of the consumption, provided we continue to operate with the same degree of efficiency that is now in effect. Except in a few localities, I believe the labor situation is very easy today, there being no trouble in securing all that is necessary to take care of the high rate of production now being carried on."

Sixteen Concerns Have 79 Per Cent of German Steel Capacity

They Control Two-Thirds of the Coal and Three-Fourths of the Blast Furnace and Open-Hearth Capacity—Their Furnaces Average Larger Than Those Outside

BERLIN, GERMANY, Jan. 13.—The two tables illustrate how far the German iron and steel production is concentrated in the large concerns and the extent to which they have possession of the German coal production. The tables were published by the *Deutsche Bergwerks-Zeitung*.

Iron and Steel Equipment and Capacity														
Concerns	Blast Furnaces		Converters				Open-Hearth Furnaces				Electric Furnaces		Pud- dling Fur- naces,	Total Capac- ity of the Steel Works, Tons
	No.	Total Capac- ity, Cubic Meters	No.	Acid Total Capac- ity, Tons	Basic Total Capac- ity, Tons	No.	Acid Total Capac- ity, Tons	Basic Total Capac- ity, Tons	No.	Total Capac- ity, Tons	No.	Total Capac- ity, Tons		
Siemens-Rheinelbe-Schuckert-Union	33	14,965	8	24	5	120	7	141	36	1,760	2	18	21	2,063
Other works of the Stinnes concern	5	1,635	...	...	...	...	...	...	20	618	3	14	10	632
Allgemeine Elektrizitäts Gesell- schaft	7	2,385	...	...	...	...	...	...	23	750	10	54	...	804
Arbed	10	2,700	...	...	10	210	...	...	21	575	3	11	11	796
Otto Wolff, Cologne	28	13,015	...	...	12	230	1	30	45	1,523	1	10	11	1,793
Krupp, including Rheinmetall	17	7,295	6	33	6	150	3	49	62	2,101	3	32	...	2,365
Röchling-Buderus-Rombach- Maxhütte	26	9,220	...	...	12	188	2	18	19	542	10	67	...	755
Thyssen, including Geisweiler Eisenhütte and Krefelder Stahl- werk	16	7,225	...	...	6	180	1	5	43	1,379	9	112	...	1,676
Stumm	19	8,180	...	...	4	100	...	...	38	1,306	2	16	12	1,422
Klöckner without Geisweiler Eisen- werke and Krefelder Stahlwerk	10	5,690	...	...	4	40	...	...	19	795	...	...	7	835
Haniel	12	5,305	...	...	6	150	...	...	15	563	1	3	...	716
Lothringen	3	700	...	...	...	...	...	...	...	...	...	...	...	...
Henschel	4	1,790	...	...	...	...	2	16	8	340	...	...	...	356
Hösch-Köln-Neuessen	7	3,630	...	...	4	59	...	...	9	576	...	...	...	635
Borsig	4	1,350	...	...	...	...	2	20	10	205	...	...	12	225
Mannesmann	...	...	...	...	...	...	...	...	11	370	1	6	...	376
Total	201	85,085	14	57	69	1,417	18	279	379	13,403	45	343	84	15,449
Total in Germany*	272	103,870	16	62	83	1,682	28	360	512	17,329	61	474	132	19,908
Above concerns, per cent.	74.7	79.3	87.5	92	83.2	84.4	64.5	77.5	75	78.3	86.5	86.9	63.6	78.8

*Including Silesia and the Saar district.

Quotas of the Concerns in the Rhenish-Westphalian Coal Syndicate										Total Coal and Own Use
In 1000 metric tons (=000 omitted)										
Concerns	Coal	Coke	Coal Briquets	Own Use	Total Coal and Own Use	Concerns	Coal	Coke	Coal Briquets	Own Use
Stumm						Klöckner without Geisweiler Eisenwerke and Krefelder Stahlwerk	2,088	563	100	900
Siemens-Rheinelbe-Schuckert-Union	16,714	3,192	1,082	4,898	21,612	Haniel	3,630	946	72	1,511
Other works of the Stinnes concern	7,089	953	365	.....	7,089	Lothringen	3,117	220	216	1,635
Allgemeine Elektrizitäts-Gesellschaft	367	300	.....	400	767	Henschel	2,520	1,040	144	.....
Arbed						Hösch-Köln-Neuessen	3,541	367	1,036	.....
Otto Wolff, Cologne	10,650	2,461	395	3,573	14,223	Borsig	6,172	1,084	.....	905
Krupp, including Rheinmetall	5,553	2,118	295	3,093	8,646	Mannesmann	2,000	550	216	425
Röchling-Buderus-Rombach-Maxhütte	1,780	235	72	1,270	3,050	Total	68,901	14,064	3,993	21,333
Thyssen, including Geisweiler Eisenhütte and Krefelder Stahlwerk	3,650	35	.....	2,723	6,373	Total quotas of the Coal Syndicate	119,547	26,221	5,626	21,743
						Quotas of the 16 concerns above, in per cent of the total	57.7	53.8	71	98.2

Alvan T. Simonds Economic Prizes for 1925

To encourage the study of economics two prizes of \$1,000 and \$500 are offered by Alvan T. Simonds, president the Simonds Saw & Steel Co., Fitchburg, Mass., for the best two essays on "Your Prosperity and Mine."

The contest is open to all residents of the United States and Canada. It is hoped that it will especially appeal to business executives, assistants to business executives and students of business and commerce.

Contestants who are not well versed in economics are advised to study elementary works, dealing with fundamentals, and to read articles on economic subjects in newspapers and magazines. The essays may be entirely original or may be based, in whole or in part, on books or articles. If the latter plan is followed, references to the books and articles should be given in footnotes.

The essays must be at least 2500 words in length and should not exceed 3500 words. They must be typewritten and on one side of the paper only. The prize winning essays, upon payment of the prizes, will become the property of Alvan T. Simonds. The judges will be announced later. The essays must reach the Contest Editor, Simonds Saw & Steel Co., 470 Main Street, Fitchburg, Mass., on or before Dec. 31, 1925.

European Markets Generally Improved

British Situation Not So Good but Germany Reports Demand
Outrunning Supply—Export Business Hard to Obtain
—German and Belgian Prices Higher

(By Cablegram)

LONDON, ENGLAND, Feb. 2.

PIG iron is weaker, as buyers still are reluctant to commit themselves for forward delivery, and sales are confined to prompt parcels. Export demand still is poor. Hematite is easy, domestic and export sales being poor. One Northeastern furnace has been banked.

Foreign ore is deadily dull. Bilbao Rubio is held nominally at 22s. 3d. (\$5.32) c.i.f. Tees, but there are few buyers.

Domestic demand for finished materials is improving, but general export demand still is poor. There are fair inquiries on Chinese account, which are anticipated to mean a revival of demand from that quarter.

Sheets and Tin Plate

Tin plate is improved so far as conditions of domestic demand is concerned, while export demand is moderate. But general buying waits on developments. Independent makers are to meet the merchants on Wednesday, when a settlement of all questions at issue is hoped for. Meanwhile business is being done at schedule prices. Some works are well placed but Richard Thomas & Co., Ltd., again has closed the Lydbrook and Lydney mills for one week.

Galvanized sheets are quiet, but makers generally are well off. Prices are steady.

Black sheets are dull. There is no demand from the Far East. Other markets are quiet.

World production of pig iron last year is estimated by the National Federation of Iron and Steel Manufacturers at 62,000,000 gross tons and of steel ingots at 69,000,000 tons.

On the Continent of Europe

Continental markets generally are firm, with the makers well sold and asking until March and April for

the earliest shipments. Sheet bars are being sold at £5 11s. 6d. (\$26.65) f.o.b. Billets are being done at £5 7s. 6d. (\$25.50) f.o.b. Merchant bars are sold at £6 17s. (1.46c. per lb.) cost and freight to India.

French iron masters are protesting against the new railroad freight rates, which constitute a heavy burden. The French press states that an agreement has been reached between the German iron masters and the German working-up industries, as of Dec. 18, regarding their combined attitude toward French commercial proposals. German consumers have accepted the principle of protection for the home market, in exchange for export allowances from the iron master.

BUSINESS GOOD IN GERMANY

Steel Syndicate February Quotas 90 Per Cent—
Production Figures for First Nine Months
of 1924

(By Cablegram)

BERLIN, GERMANY, Feb. 2.—The market is slightly weaker, but business continues good. The Steel Syndicate has increased the February production quotas of its members to 90 per cent of their respective full capacities, compared with 80 per cent in both January and December. Producers of rolled steel require one month for delivery. Longer time than this is needed for thin sheets and wire, which are greatly in demand. Prices are unchanged, except for scrap, which is weaker.

Smelters are optimistic. They are importing heavily of Swedish ore.

Export orders for finished metal goods are increasing, but in heavy iron and steel lines Belgium is underselling Germany. The future of the market de-

British and Continental prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.78 per £1, as follows:

Durham coke, del'd.	£1 4s.	\$5.74
Bilbao Rubio ore†	1 4	5.74
Cleveland No. 1 fdy.	4 4	20.08
Cleveland No. 3 fdy.	3 19	18.88
Cleveland No. 4 fdy.	3 18	18.76
Cleveland No. 4 forge	3 17	18.52
Cleveland basic	4 0	19.12
East Coast mixed	4 6½	20.67
East Coast hematite	4 19½	23.66 to \$23.90
Ferromanganese	15 0	71.70 to 72.90
*Ferromanganese	15 0	71.70 to 72.90
Rails, 60 lb. and up.	8 10	40.63 to 43.02
Billets	7 0	33.46 to 38.24
Sheet and tin plate bars, Welsh	8 7½	40.03
Tin plates, base box.	1 3½	5.62
C. per Lb.		
Ship plates	9 0	1.92 to 2.03
Boiler plates	13 0	2.77 to 2.88
Tees	8 17½	1.89 to 2.00
Channels	8 2½	1.73 to 1.84
Beams	7 17½	1.68 to 1.79
Round bars, ¾ to 3 in.	9 2½	1.95 to 2.05
Galv. sheets, 24 gage	17 0	3.63 to 3.68
Black sheets, 24 gage	12 10	2.67 to 2.72
Black sheets, Japanese specifications	15 5	3.25
Steel hoops	10 15 and 12 10*	2.29 and 2.67*
Cold rolled steel strip, 20 gage	16 0	3.41

*Export price.

†Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

Foundry pig iron:(a)			
Belgium	£3 16s.		\$18.16
France	3 16		18.16
Luxemburg	3 16		18.16
Basic pig iron:(a)			
Belgium	3 14	to £3 15s.	17.69 to \$17.92
France	3 14	to 3 15	17.69 to 17.92
Luxemburg	3 14	to 3 15	17.69 to 17.92
Billets:(a)			
Belgium	5 7½	to 5 10	26.69 to 26.29
France	5 7½	to 5 10	26.69 to 26.29
Merchant bars:			
Belgium	6 0	to 6 5	1.28 to 1.32
Luxemburg	6 0	to 6 5	1.28 to 1.32
France	6 0	to 6 5	1.28 to 1.32
Joists (beams):			
Belgium	5 15		1.23
Luxemburg	5 15		1.23
France	5 15		1.23
Angles:			
Belgium	6 0	to 6 3½	1.28 to 1.31
¼-in. plates:			
Belgium	7 3½	to 7 7½	1.53 to 1.57
Germany	7 3½	to 7 7½	1.53 to 1.57
A-in. ship plates:			
Luxemburg	7 3½	to 7 7½	1.53 to 1.57
Belgium	7 3½	to 7 7½	1.53 to 1.57

(a) Nominal.

pends mainly upon a revival of industrial and domestic building, concerning which prevailing views are hopeful.

German Production in 1924

Production in Germany in the first nine months of 1924 included 5,390,000 metric tons of pig iron and 6,860,000 tons of steel ingots.

Newly appearing gold-mark balance sheets show a great increase, as compared with 1913 in the assets of the pig iron and steel concerns.

STEADY IMPROVEMENT REPORTED

German Industry Moving Ahead in Spite of Failure of Negotiations with France

BERLIN, GERMANY, Jan. 13.—The Franco-German negotiations for a trade agreement having come almost to a standstill, negotiations for an agreement between the iron and steel industries of the two countries have been suspended also. The South German iron market is especially interested in the negotiations for a trading agreement with France as it imports large quantities of iron material from Lorraine and Luxemburg, and some anxiety prevails in regard to the development in the market, when the imports come to a stop on account of the absence of an agreement between Germany and its western neighbors.

Negotiations with a view to establishing syndicates within the Raw Steel Syndicate for the different iron products are likewise encountering many difficulties. In most lines it seems almost impossible to come to an agreement on the supply quota which every firm is to have in the syndicate. In the syndicate of the manufacturers of semi-finished iron products, which is the first syndicate established within the Raw Steel Syndicate, the starting of selling operations has been retarded and the firms are still disposing of their production themselves. Negotiations among the producers of tubes have been successful also, as the large works arrived at an understanding in regard to the quota of the members on the basis of the 1921 productive capacity of the works. The sale of the products is to be carried out by the sales office of the syndicate.

Demand for Steel Exceeds Production

Conditions in the iron market are steady, demand is brisk and prices are stiffening. The works have many inquiries and there seems to be no possibility that the favorable development will come to a halt for some time. On the contrary, as many building programs will be started with the beginning of spring the iron works expect more orders, especially in structural shapes, and prospects in the iron industry are considered favorable during the next few months. Some works have even suspended sales. Especially in semi-finished material, demand is exceeding supplies and prices show a marked upward tendency, which is due also to the considerable increase in scrap prices lately. The price advances in the iron market abroad also largely influence the development in the German home market. In thin sheets most works have sold their production for some time ahead and demand is strong. Heavy plates also are selling well lately and rolled wire is scarce. Prices are, on the average, about as follows, in marks per metric ton, with American equivalent, per gross ton or per lb.:

Blooms	120	\$29.04
Billets	125	30.25
Sheet bars	130	31.46
Wire rods	150	36.30
Bar iron	132	1.43c.
Structural shapes	127	1.32c.
Universal iron	145	1.57c.
Hoop iron	165	1.78c.
Sheet, heavy, above No. 6½ gage	150	1.62c.
Sheets, medium, No. 11½ to 6½ gage	175	1.89c.
Plates 1 to 3 mm., No. 19½ to 11½ gage	215	2.32c.
Plates below 1 mm. or No. 19½ gage	225	2.43c.
Wire, drawn, bright	180	1.95c.
Wire, drawn, galvanized	220	2.39c.

The Giessereiverband (Association of Iron Foundry Masters) has raised prices by 8 per cent, it is said, owing to increases in wages, scrap, etc., while the Pig

Iron Association has decided not to increase prices during January.

The Siegerland iron works, especially the fine sheet mills, are fully booked and a number of blast furnaces have been rekindled. Wire and wire goods also are in great demand. With the improvement in the iron industry conditions in the Siegerland iron ore market have become much better lately and demand has increased, which, however, is mainly supplied from the large stocks available, which have been reduced considerably during the last few weeks. Though foreign material has slightly advanced, the Siegerland ore producers have not raised their prices. They expect a revision of the railroad freight rates for ore and coal and are optimistic in regard to the development of the ore trade this year.

In connection with the improvement in the German iron market the scrap market has been more active during the last few weeks and prices are stiffening. There is a scarcity of material, as the scrap that became available after the war has been used up. German buyers are making strong endeavors to import scrap, but prices abroad also have advanced strongly and France and Belgium have prohibited the exportation of scrap. Demand in the Rhenish-Westphalian district, as well as in the other German centers of iron production, is very strong. The iron works, however, are buying more regularly now, which gives the market a certain steadiness and the advances in prices have come to a halt. Quotations are now about 82 marks per ton (\$19.84) for steel scrap, 80 marks (\$19.36) for solid scrap, 66 marks (\$15.97) for chips and 85 marks (\$20.57) for cast iron scrap.

Employment and Expansion of Interests

Employment in the German engineering works has further improved lately. Several large South American railroad orders have been booked lately by German firms. Krupp received an order for 40 locomotives and Henschel & Sohn, Kassel, has booked a large order for wheels and axles. The Waggonfabrik Werdau has received an order for a large number of freight cars and passenger cars for the Indian railroads.

German concerns in the iron industry have always taken a large interest in the Balkan market and, during the last few years, have made every endeavor to extend their business in Southeastern Europe. Stinnes, Otto Wolff, Röchling and Krupp have been especially active in this respect. The latter now has gained a strong footing by concluding a working agreement with the first South-Slovakian car, machine and bridge building company in Brod. The majority is in Hungarian hands and the company employs about 2000 men. It has a capacity of 2400 railroad cars per year, but as Jugo-Slavia has ordered the requirements for its railroads on reparation account in Germany the company has not been fully employed. It is now intended to enlarge the car production and introduce the manufacture and repair of locomotives. The working agreement also includes bridge building.

Pay and Hours of Labor

The Federal Economic Council has inquired into the conditions in the blast furnace works, the coke works and the coal distillation works, which the Minister of Labor indicated as being those in which the two-shift system ought to be substituted by the three-shift system, and has decided in favor of the 8-hr. shift.

In the metal and engineering industry a new award has been given by a board of arbitration, which increases the wage for skilled men from 0.60 to 0.65 marks (14.5c. to 15.7c.) per hour, but abolishes the extra payments to married men for the wife and children. It is said that the small increase in the cost of living index would not warrant an increase but, as wages in the engineering industry remained behind those in other industries, it was deemed advisable to increase them, though it had to be considered that most men were working at piece work rates and earned about 30 per cent more. In the Berlin iron and engineering industry an agreement has been arrived at under which salaries are to be raised by 20 per cent.

Insolvencies in Germany, which had reached the

lowest level with eight cases in November, 1923, gradually increased during the first half of 1924. The pre-war monthly average of about 800 was exceeded in July, with 1173 cases. Since then the number has been reduced to 572 in December and for the whole of 1924 the number of bankruptcies, with 5710, is still behind the yearly average of 1908 to 1913, which amounted to about 9000.

FREIGHT RATES HAMPER FRENCH

Iron and Steel Market Unsettled by Lack of Confidence in Costs—Shipping Seamless Steel Pipe to United States

PARIS, FRANCE, Jan. 23.—Unsettled conditions still prevail in the French iron and steel market and there is a complete lack of confidence. Buying is only of a day-to-day character, although the requirements are considerable; besides, the producers who have still a fair supply of orders on hand refuse to enter into forward commitments, due to the uncertainty of the future.

Credits put at the disposal of the industry are likely to remain limited, as the Government is strongly opposed to any further inflation. The recent increase in transport charges largely impeded the development of trade; in the case of pig iron, this increase represents an advance in cost of 8 fr. per ton. The break-up of the Franco-German commercial negotiations, together with demands for wage increases throughout the country, add to the uneasiness of the market.

Coke.—The supply of coke to the ORCA for the first 20 days of the current month amounted to 193,707 tons, a daily average of hardly 9700 tons. There is talk, not confirmed, of a possible increase of 15 fr. per ton in the price of indemnity coke in France, due to an advance in the German inland price resulting from a rise in the Ruhr miners' wages.

Iron Ore.—The output remains stationary, but demand continues favorable. There are few stocks in the Briey quality and current prices are 26 fr. (\$1.43) and 22 fr. (\$1.21) for the high-grade and ordinary product, respectively. Exportation of ore is rendered difficult by the increase in transport charges, particularly as far as the United Kingdom is concerned, as the transportation cost from Briey to Dunkirk, previously 16 fr. the ton (\$0.88), has been raised by 2.50 to 3 fr., or 20 per cent.

Pig Iron.—Business is dull, but the output is freely absorbed. To account for the rise in costs consequent upon the advance in transport tariffs most of the producers are revising their selling prices.

The Forges et Aciéries du Nord et de l'Est (Nord) have momentarily stopped making foundry iron at l'Espérance works in Louvroil and taken up basic. Similar steps have been followed by the Aciéries de France, at Isbergues. Thus the ironmasters of the Meurthe-et-Moselle region have regained control of the Northern markets and imposed the average price of 310 to 315 fr. (\$17.07 to \$17.35) for No. 3 PL; very few plants will deal between 305 and 310 fr. (\$16.80 and \$17.07). The price realized by a founders' cooperative association for Homécourt iron is never under 315 fr. Semi-phosphoric iron (less than 1 per cent Ph.) is selling on the basis of 340 to 350 fr. (\$18.72 to \$19.27) at works. Hematite is offered at 435 fr. (\$23.95), delivered, or 415 fr. (\$22.85), producing works, in the North; 405 to 410 fr. (\$22.30 to \$22.58) in the Center; 420 to 425 fr. (\$23.13 to \$23.39) in the East and West. The decision taken by the producers some two months ago, of maintaining the rates of 455 fr. (\$25.05), delivered, North; 460 fr. (\$25.33), East; 480 fr. (\$26.43), West and Paris areas, has been short lived, on account of the very low demand. The appreciation of Anglo-Saxon currencies is an incentive to our export trade. Current quotations are 335 to 350 fr. (\$18.45 to \$19.27), f.o.b. Antwerp, for foundry iron.

Ferroalloys.—There has been a slackening in trade and prices in certain categories have eased off: Spiegeleisen, 10 to 12 per cent Mn., is worth 520 to 525 fr. (\$28.63 to \$28.90) the ton, delivered; 18 to 20 per cent is sustained at 650 fr. (\$35.80) on truck East; French ferromanganese is worth 1525 to 1550 fr. (\$84 to

\$85.35) the ton, delivered; Outreau is asking 1,500 fr. (\$82.60) at works. The Carbid Co. of Norway is selling at parity with the British price, that is: £15 10s. (\$74.40), f.o.b. French or Belgian ports.

Semi-Finished Products.—Featureless and unsettled section. Competition is again active with the Luxembourg and Sarre plants, while the Belgian works have few supplies available. Bookings in the plants stand for five to six weeks ahead. Prices are unaltered. Inland ingots (basic steel), 380 to 400 fr. (\$20.93 to \$22.03); blooms, 400 to 420 fr. (\$22.03 to \$23.13); billets, 420 to 440 fr. (\$23.13 to \$24.23); largets, 450 to 460 fr. (\$24.78 to \$25.33) on truck. Export, blooms, £5 to £5 1s. 6d. (\$24 to \$24.36); billets, £5 2s. 6d. to £5 6s. (\$24.60 to \$25.44); largets, £5 7s. to £5 10s. (\$25.68 to \$26.40).

Rolled Steels.—The steel works of the East region are busy for two months; a few contracts for delivery in five to seven weeks have been accepted, but the market is generally quiet and prices easier. The average quotation is 50 to 52 fr. (1.23c. to 1.28c. per lb.) for merchant steels; the joist market is thoroughly idle and there is no indication yet of the usual spring recovery. The recent order of rails placed by the Northern railroads was on the average of 47 to 48 fr. per 100 kg. (\$25.88 to \$26.43 per gross ton) at works. Competition is not so keen at export and prices are easier at £5 12s. 6d. to £5 15s. (1.21c. to 1.23c.) for beams; £5 18s. 6d. to £6 2s. 6d. (1.27c. to 1.31c.) for bars, against the German quotation of £6 2s. 6d. (1.31c.), f.o.b. Bremen.

Plates and Sheets.—The heavy gage section is weak and prices much discussed at 64 to 67 fr. (1.57c. to 1.65c.) in the Nord and Sarre; 68 to 72 fr. (1.67c. to 1.77c.) in West. The prices of medium sheets range from 80 to 85 fr. (1.97c. to 2.09c.). The light sheet compartment is better, the highest price recorded being around 105 fr. (2.58c.) at works. Export trade is firm and active. Black hoops are offered currently at 65 to 67.50 fr. (1.60c. to 1.66c.) on truck, Lorraine plants.

Wire Rods.—Steady and active both at home and for export; most of the plants are booked up to the end of March. This is due to a large replenishing of stocks. Prices have stiffened on both markets.

Steel Pipe.—The Aciéries et Usines à Tubes de la Sarre, formed with French capital and including most of the largest producers of steel pipes in France, exploiting the Mannesmann Works at Bous (Sarre) has, in effect, just placed a new contract for a few hundred tons of semi-hard steel weldless pipes for a value of about one-half million francs. This firm in 1924 exported to the United States 5000 tons (about) of steel pipe of its own make and expects to be able to place a double quantity this year, in spite of their prices being above those quoted by the American producers of welded tubes. The Germans have taken umbrage at this exportation to the United States and have proposed to the Aciéries et Usines à Tubes de la Sarre the conclusion of an agreement for the [joint] exploitation of the American market.

Chinese Market Shows Effect of Buying Movement for Iron and Steel Products

SHANGHAI, CHINA, Dec. 24.—There is a little more activity in the iron and steel market of Shanghai. The buying movement, which began about two weeks ago, has yielded small orders from the interior. Demand for wire nails, galvanized sheets and plates has been a feature, also. The movement of cargo is better than before, but no remarkable change is expected until after the Chinese New Year. New business is difficult, owing to the fact that large stocks are still carried in many lines. The movement in mild steel bars promises to develop into bigger dimensions. Wire nails are selling in the neighborhood of Tls. 4 per keg.

There have been some inquiries for galvanized tubes from the interior, and a fairly good business has been booked. American prices are fairly steady. American galvanized sheets, after going down, covered up the decline, and are now quoted fairly steady. The fact that cargoes are beginning to move is interpreted a good sign by the trade.

JANUARY IRON OUTPUT

Increase Over December 13,082 Tons Per Day
or 12 Per Cent

Net Gain of 23 Furnaces with 26 Blown In and 3
Shut Down

Another sharp increase in pig iron production was registered in January. From statistics gathered largely by wire the gain last month was 13,082 tons in the daily rate, or about 12 per cent. The December gain over November was 14 per cent. For the third consecutive month the net gain in active furnaces was 23.

The production of coke pig iron for the 31 days in January amounted to 3,367,264 gross tons, or 108,621 tons per day, as compared with 2,961,702 tons, or 95,539 tons per day, for the 31 days of December. The January total is the largest since March, 1924. It is the first time the daily rate has exceeded 100,000 tons since April, last year.

There were 26 furnaces blown in and only three blown out or banked, the net gain being 23, or the same as in December, November and September. Since the upturn came late in July the net gain in active furnaces has been 107. The capacity of the 251 furnaces active on Feb. 1 is estimated at 111,150 tons per day, contrasting with 98,380 tons per day for the 228 furnaces active on Jan. 1. Of the 26 furnaces blown in last month 12 were Steel Corporation units, 10 were independent steel company stacks and only four were merchant furnaces. Two independent steel stacks were shut down and one merchant.

Ferromanganese output at 23,578 tons was the largest since April, 1924.

Daily Rate of Production

The daily rate of production of coke and anthracite pig iron by months from January, 1924, is as follows:

Daily Rate of Pig Iron Production by Months—Gross Tons			
	Steel Works	Merchant	Total
January, 1924	73,368	24,016	97,384
February	83,126	22,900	106,026
March	86,276	25,533	111,809
April	82,101	25,680	107,781
May	82,176	22,182	84,358
June	50,237	17,304	67,541
July	43,353	14,224	57,577
August	45,591	15,284	60,875
September	50,312	18,130	68,442
October	59,952	19,955	79,907
November	63,230	20,426	83,656
December	76,682	19,857	96,539
January, 1925	86,757	21,864	108,621

The figures for daily average production, beginning with January, 1919, are as follows:

Daily Average Production of Coke and Anthracite Pig Iron in the United States by Months Since Jan. 1, 1918—Gross Tons									
	1919	1920	1921	1922	1923	1924	1925		
Jan.	106,525	97,264	77,945	53,063	104,181	97,384	108,621		
Feb.	105,006	102,720	69,187	58,214	106,935	106,026			
Mar.	99,685	108,900	51,468	65,675	113,673	111,809			
Apr.	82,607	91,327	39,768	69,070	118,324	107,781			
May	68,002	96,312	39,394	74,409	124,764	84,358			
June	70,495	101,451	35,494	78,701	122,548	67,541			
July	78,340	98,931	27,889	77,592	118,656	57,577			
Aug.	88,496	101,529	30,780	58,586	111,274	60,875			
Sept.	82,932	104,310	32,850	67,791	104,184	68,442			
Oct.	60,115	106,212	40,215	85,092	101,586	79,907			
Nov.	79,745	97,830	47,183	94,990	96,476	83,656			
Dec.	84,944	87,222	53,196	99,577	94,225	95,539			
Year	83,789	99,492	45,325	73,645	109,713	85,075			

Among the furnaces blown in during January were the following:

One Buffalo furnace of the M. A. Hanna Co. in the Buffalo district and one furnace of the Witherbee Sherman Co. in New York; one furnace at the Coatesville plant of the Bethlehem Steel Corporation in the Schuylkill Valley; one furnace at the Steelton plant of the Bethlehem Steel Corporation in the Lower Susquehanna Valley; one Duquesne, one Edgar Thomson and two Isabella furnaces of the Carnegie Steel Co. in the Pittsburgh district; one Newcastle furnace of the Carnegie Steel Co. in the Shenango Valley; one Mingo furnace of the Carnegie Steel Co. in the Wheeling district; the Jeanette and Tod furnaces of the Youngstown Sheet & Tube Co., and two Ohio furnaces

of the Carnegie Steel Co. in the Mahoning Valley; one Toledo furnace in northern Ohio; two South Chicago furnaces of the Illinois Steel Co., one Gary furnace, one Inland furnace, one Iroquois furnace of the Youngstown Sheet & Tube Co. and one Federal furnace in the Chicago district; one furnace of the Minnesota Steel Co. in Minnesota; two furnaces of the Sloss-Sheffield Steel & Iron Co. and one Oxmoor furnace of the Tennessee Coal, Iron & Railroad Co. in Alabama.

Among the furnaces blown out or banked during January are the following:

The Martin's Ferry furnace of the Wheeling Steel & Iron Co. in the Wheeling district; one Haselton furnace of the Republic Iron & Steel Co. in the Mahoning Valley and one River furnace in northern Ohio.

Output by Districts

The accompanying table gives the production of all coke and anthracite furnaces for January and the three months preceding.

Pig Iron Production by Districts, Gross Tons				
	Jan. (31 days)	Dec. (31 days)	Nov. (30 days)	Oct. (31 days)
New York	203,203	182,742	165,594	145,930
New Jersey	79,155	78,909	80,634	79,473
Lehigh Valley	88,522	70,843	51,786	51,966
Schuylkill Valley	40,816	39,761	36,321	37,157
Lower Susquehanna and Lebanon Valleys	754,675	638,237	528,589	519,015
Pittsburgh district	160,128	120,803	88,939	86,279
Shenango Valley	143,502	140,027	119,099	116,730
Western Pa.	81,614	84,349	65,389	66,896
Maryland, Virginia and Kentucky	141,546	120,185	101,862	94,976
Wheeling district	329,457	300,629	240,141	222,344
Mahoning Valley	318,872	298,951	263,734	265,020
Central and Northern Ohio	46,732	37,326	32,093	34,722
Southern Ohio	619,802	502,805	388,534	390,556
Illinois and Indiana				
Mich., Minn., Mo., Wis., Colo. and Utah	120,892	108,717	106,536	102,839
Alabama	231,465	230,760	233,124	250,472
Tennessee	6,883	6,658	7,298	12,752
Total	3,367,264	2,961,702	2,509,673	2,477,127

Capacities in Blast Feb. 1

The following table shows the number of furnaces in blast Feb. 1 in the different districts and their capacity, also the number and daily capacity in gross tons of furnaces in blast Jan. 1:

Coke and Anthracite Furnaces in Blast					
Location of Furnaces	Total Stacks	Feb. 1		Jan. 1	
		In Blast	Capacity per Day	In Blast	Capacity per Day
New York:					
Buffalo	22	16	6,340	15	5,845
Other New York	5	1	350	0	....
New Jersey	4	0	....	0	....
Pennsylvania:					
Lehigh Valley	12	6	2,370	6	2,375
Spiegeleisen	2	1	175	1	170
Schuylkill Valley	15	8	2,850	7	2,460
Lower Susquehanna	9	3	1,225	2	1,005
Ferromanganese	1	1	75	1	65
Lebanon Valley	4	1	190	1	200
Ferromanganese	2	0	....	0	....
Pittsburgh District	55	49	23,450	45	21,600
Ferro and spiegel	4	3	390	3	300
Shenango Valley	17	12	5,070	11	4,600
Western Pa.	22	11	4,625	11	4,595
Ferro and spiegel	2	0	....	0	....
Maryland	5	4	1,775	3	1,765
Ferromanganese	1	1	110	1	120
Wheeling District	14	10	4,325	10	4,190
Ohio:					
Mahoning Valley	28	22	10,100	19	9,000
Central and Northern	25	18	10,000	18	9,500
Southern	14	5	1,500	5	1,510
Illinois and Indiana	42	38	20,400	32	17,425
Mich., Wis. and Minn.	12	7	2,890	6	2,340
Colo., Mo. and Utah	6	3	1,130	3	1,165
The South:					
Virginia	17	2	310	2	285
Ferromanganese	1	1	80	1	85
Kentucky	7	1	350	1	350
Alabama	39	24	10,750	21	7,125
Ferromanganese	1	1	100	1	90
Tenn., Ga. and Texas	15	2	220	2	215
Total	403	251	111,150	228	98,380

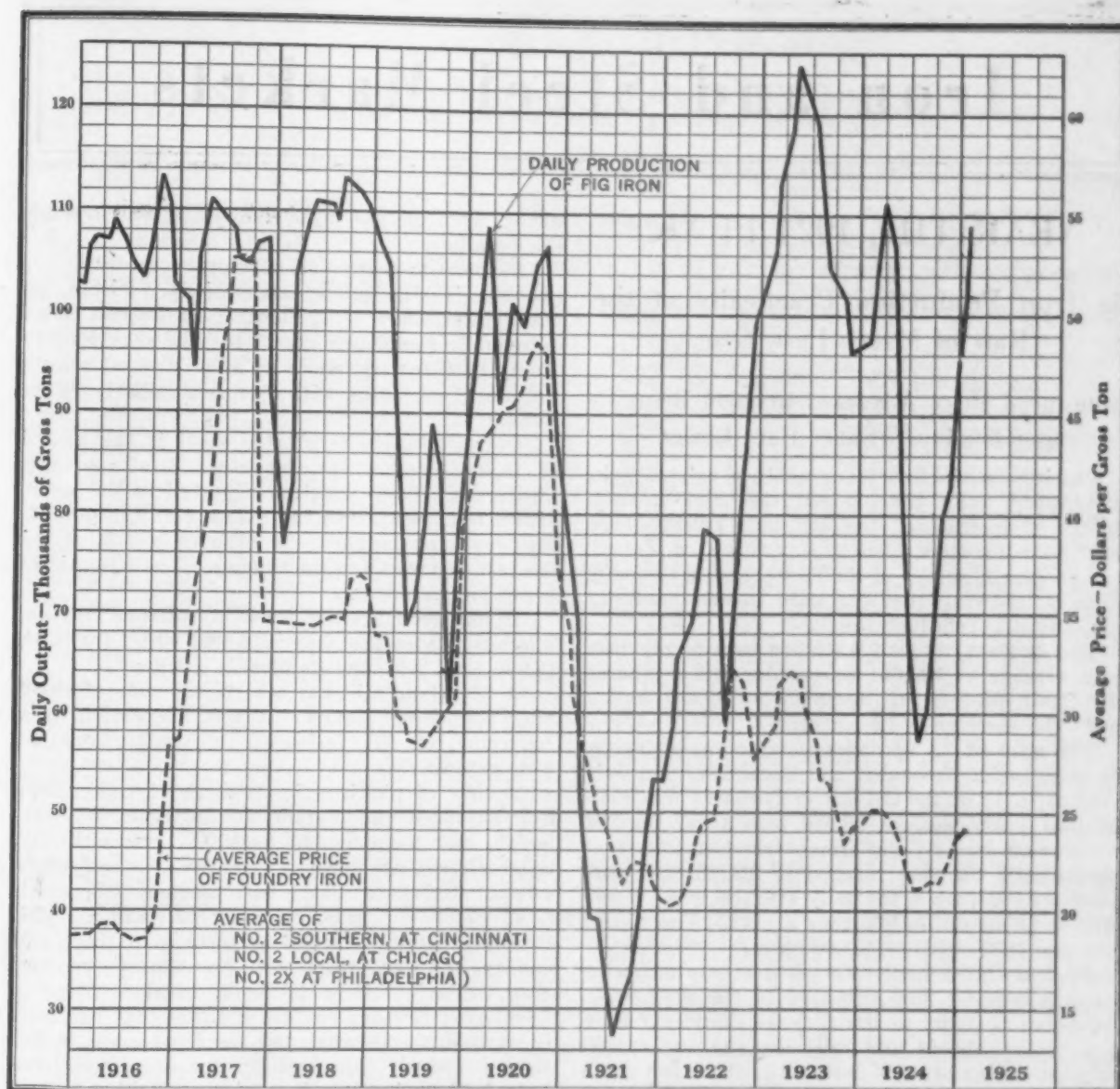


Diagram of Pig Iron Production and Price

Production of Steel Companies—Gross Tons

Returns from all furnaces of the United States Steel Corporation and the various independent steel companies, as well as from merchant furnaces producing ferromanganese and spiegeleisen, show the foregoing totals of steel making iron, month by month, together with ferromanganese and spiegeleisen. These last, while stated separately, are also included in the columns of "total production."

Production of Steel Companies—Gross Tons					
Total Production		Spiegeleisen and Ferromanganese			
1924	1925	1924	1925	1924	1925
Jan. ... 2,274,005	2,689,465	20,735	7,948	23,578	5,418
Feb. ... 2,410,658	...	22,405	9,870	...	...
Mar. ... 2,674,565	...	22,351	13,796	...	...
Apr. ... 2,463,027	...	23,580	4,240	...	...
May ... 1,927,461	...	14,993	9,336	...	...
June ... 1,507,110	...	20,049	9,405	...	...
½ year. 13,256,826	...	124,113	54,595	...	...
July ... 1,343,952	...	14,367	15,328	...	...
Aug. ... 1,413,314	...	10,718	8,010	...	...
Sept. ... 1,509,360	...	13,263	5,033	...	...
Oct. ... 1,858,502	...	7,780	10,047	...	...
Nov. ... 1,896,886	...	13,448	8,835	...	...
Dec. ... 2,377,141	...	21,220	5,284	...	...
Year. 23,656,981	...	204,909	107,132	...	...

Production and Price Chart

The fluctuations in pig iron production from 1915 to the present time are shown in the accompanying chart. The figures represented by the heavy line are those of

the daily average production by months, of coke and anthracite pig iron. The dotted curve on the chart represents monthly average prices of Southern No. 2 foundry pig iron at Cincinnati, local No. 2 foundry iron at furnaces in Chicago, and No. 2X at Philadelphia. They are based on the weekly quotations of THE IRON AGE.

Production of Coke and Anthracite Pig Iron in United States by Months, Beginning Jan. 1, 1921—Gross Tons

	1921	1922	1923	1924	1925
Jan. ...	2,416,292	1,644,951	3,229,604	3,018,890	3,267,264
Feb. ...	1,937,257	1,629,991	2,994,187	3,074,757	...
Mar. ...	1,595,522	2,035,920	2,523,868	3,466,086	...
Apr. ...	1,193,041	2,072,114	2,549,736	3,233,428	...
May ...	1,221,221	2,306,679	2,867,694	3,615,110	...
June ...	1,064,833	2,361,028	2,676,445	2,026,221	...
½ year. 9,428,166	12,050,683	20,841,534	17,434,492	...	...
July ...	864,555	2,405,365	3,678,324	1,784,899	...
Aug. ...	954,193	1,816,170	3,449,493	1,887,145	...
Sept. ...	985,529	2,033,720	3,125,512	2,053,264	...
Oct. ...	1,246,676	2,637,844	3,149,153	2,477,127	...
Nov. ...	1,415,481	2,849,703	2,894,295	2,509,673	...
Dec. ...	1,649,086	2,086,896	2,920,982	2,961,702	...
Year*. 16,542,686	26,880,382	40,059,308	31,108,302	...	...

*These totals do not include charcoal pig iron. The 1923 production of this iron was 251,177 tons.

The Wheeling Steel Corporation has plans for the extension and modernizing of its steel pipe plant at Benwood (Wheeling), W. Va. Frank I. Ellis, Farmers Bank Building, Pittsburgh, is consulting engineer.

Iron and Steel Markets

NEAR THE 1924 PEAK

Pig Iron Production Practically at the Rate of March Last Year

Announced Price Advances in Steel Bring in Specifications—Sheet Bars Lower

Pig iron production made another notable gain in January, fully bearing out the week-by-week reports of increasing steel output. Twenty-three more blast furnaces were in operation on Feb. 1 than on Jan. 1, and 20 of the 23 were steel company furnaces, showing that the gain in merchant pig iron output is relatively small.

The January total of 3,367,264 tons of pig iron is an average of 108,621 tons a day and compares with 2,961,702 tons in December, or 95,539 tons a day. The increase is 12 per cent.

The gain of 23 furnaces last month is exactly the same as for November and December. On Feb. 1 the capacity of the 251 active furnaces was 111,150 tons a day, against 98,380 tons a day for 228 furnaces on Jan. 1. Pig iron production is now at substantially the rate reached in March, the peak month of 1924, when the daily average was 111,809 tons, or about 40,750,000 tons a year. The record year was 1923, with 40,361,000 tons.

High as the recent rate of steel works operation has been, it has increased in the past week. The finishing mills in the Chicago district rolling bars, plates, shapes and rails are running at 100 per cent. The Carnegie Steel Co., which last week was at 91 per cent of its ingot capacity, is at 97 per cent this week. However, in the Youngstown district there has been a slight falling off in the output of independent steel companies.

It is probable that in spite of the high rate of January output, the Steel Corporation's statement will show an increase in unfilled orders, also that the leading independent now has as full an order book as on Jan. 1.

The fact that steel is not going into consumption as fast as the mills are turning it out is focusing attention on operations in secondary lines. The extent to which consumers of steel can increase their own output in the next 60 days will decide whether the present rate of steel production can be maintained, also how far the recent price advances in finished steel can be held.

Indications today are that the leading steel producers will maintain through February the scale of production reached in the second half of January. One effect of the announced advances of \$2 a ton in bars, plates, shapes, sheets and wire has been to increase specifications on the low-priced bookings of November and December.

The sheet subsidiary of the Steel Corporation on Jan. 30 advanced its prices for the second quarter on common finishes of sheets by \$2, following independent makers. In the Pittsburgh district this week several producers of plates, shapes and bars have gone up to 2.20c. for each of these products. On Feb. 4 two independent wire producers raised plain wire by \$2 a ton, or to \$2.70 per 100 lb., and nails to \$2.95 a keg. Other pro-

ducers are expected to do likewise after covering their trade.

Business in sheets and wire products, while improving, is still below expectations. Prices, as with plates, show irregularity. At Detroit some automobile companies expect to take sheets more freely in February, while at other Detroit plants February schedules will represent slight reductions.

Outstanding in fabricated steel is the award of 16,700 tons for the Carquinez Straits bridge, California. Total bookings reported in the week, 43,000 tons, are above the average of the preceding weeks of January. A drop of one-third for the last two weeks in the tonnage of new inquiries is not yet significant.

It has been a quiet week in railroad buying. The New Haven has placed its 1925 order for rails, 15,000 tons, with the Bethlehem company.

A Cleveland mill has sold 15,000 tons of sheet bars for second quarter at \$39, Cleveland, or a reduction of \$1, following a similar one at Youngstown.

Selling of pig iron by brokers at concessions has weakened the market at Buffalo and Pittsburgh, and foundry and malleable grades in the latter district are down at least 50c. per ton, while sales of Buffalo iron have been made at \$22, which is \$1 below the price made by furnaces. Dutch iron is proving attractive on account of price and quality, and competition with the domestic product is particularly keen in the Boston market. Reports from most foundry centers indicate that the melt is increasing somewhat, but there are cases in the East in which deliveries of domestic iron have been held up because foundries are taking in low priced foreign iron bought for early delivery.

With little buying by mills the scrap market is still declining. At Chicago heavy melting steel at \$18 is \$3 a ton below the peak of three weeks ago.

German makers of Mannesmann pipe are reported to be seeking an arrangement with the French Mannesmann works in the Sarre for dividing American business. The French plant placed several thousand tons in this country last year and now has the Adirondack Light & Power Co. line, 17 miles.

Finished steel is a trifle lower, THE IRON AGE composite price having dropped to 2.546c.

Pittsburgh

New Prices on Shapes, Plates, Bars and Wire—Scrap and Pig Iron Weak

PITTSBURGH, Feb. 3.—Advances announced by independent companies in plates, shapes, bars and sheets about a week ago, have been followed by the Steel Corporation, and with all producers now quoting the new prices, the asking prices are \$4 a ton higher on plates and \$2 a ton higher on the other products. These prices have not been established by sales, but if the primary motive behind this upward revision was the stimulation of specifications against old and lower priced business, it must be said that a fair measure of success has been achieved, as the common report is

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Feb. 3, 1925	Jan. 27, 1925	Jan. 6, 1925	Feb. 5, 1924
No. 2X, Philadelphia...	\$25.01	\$25.01	\$25.01	\$23.63
No. 2, Valley Furnace...	22.00	22.50	22.00	23.00
No. 2, Southern, Cin'tif...	24.05	24.05	24.05	26.55
No. 2, Birmingham, Ala.†	20.00	20.00	20.00	22.50
No. 2 foundry, Chicago*	24.00	24.00	24.00	24.50
Basic, del'd. eastern Pa...	24.25	24.25	24.25	22.50
Basic, Valley furnace...	22.00	22.00	21.50	22.00
Valley Bessemer del. P'gh.	24.76	24.76	24.26	25.26
Malleable, Chicago*	24.00	24.00	24.00	24.50
Malleable, Valley	22.00	22.50	22.00	23.00
Gray forge, Pittsburgh...	23.26	23.76	23.26	23.76
L. S. charcoal, Chicago...	29.04	29.04	29.04	29.15
Ferromanganese, furnace...	115.00	115.00	110.00	107.50

Rails, Billets, Etc., Per Gross Ton:	Feb. 3, 1925	Jan. 27, 1925	Jan. 6, 1925	Feb. 5, 1924
O.-h. rails, heavy, at mill...	\$43.00	\$43.00	\$43.00	\$43.00
Bess. billets, Pittsburgh...	37.00	37.00	37.00	40.00
O.-h. billets, Pittsburgh...	38.00	38.00	38.00	40.00
O.-h. sheet bars, P'gh...	39.00	39.00	39.00	42.50
Forging billets, base, P'gh.	42.50	42.50	42.50	45.00
O.-h. billets, Phila...	41.67	41.67	41.67	45.17
Wire rods, Pittsburgh...	48.00	48.00	48.00	51.00
Skelp, gr. steel, P'gh, lb...	2.10	2.00	2.00	2.35
Light rails at mill...	1.80	1.80	1.80	2.00

Finished Iron and Steel,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	2.28	2.28	2.10	2.57
Iron bars, Chicago	2.00	2.00	2.00	2.40
Steel bars, Pittsburgh...	2.10	2.10	2.10	2.40
Steel bars, Chicago	2.20	2.20	2.10	2.50
Steel bars, New York...	2.44	2.44	2.44	2.74
Tank plates, Pittsburgh...	2.00	2.00	2.00	2.50
Tank plates, Chicago	2.30	2.30	2.20	2.60
Tank plates, New York...	2.34	2.34	2.34	2.69
Beams, Pittsburgh	2.10	2.10	2.10	2.50
Beams, Chicago	2.30	2.30	2.20	2.60
Beams, New York	2.44	2.44	2.34	2.74
Steel hoops, Pittsburgh...	2.50	2.50	2.50	3.00

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market report on other pages.

Sheets, Nails and Wire, Per Lb. to Large Buyers:	Feb. 3, 1925	Jan. 27, 1925	Jan. 6, 1925	Feb. 5, 1924
Sheets, black, No. 28, P'gh.	3.50	3.60	3.60	3.85
Sheets, black, No. 28, Chicago dist. mill	3.70	3.70	3.70	...
Sheets, galv., No. 28, P'gh.	4.75	4.75	4.75	5.00
Sheets, galv., No. 28, Chicago dist. mill	4.85	4.85	4.85	...
Sheets, blue, 9 & 10, P'gh.	2.70	2.70	2.70	3.00
Sheets, blue, 9 & 10, Chicago dist. mill	2.80	2.80	2.80	...
Wire nails, Pittsburgh...	2.85	2.85	2.85	3.00
Wire nails, Chicago dist. mill	2.95	2.95	2.95	...
Plain wire, Pittsburgh...	2.60	2.60	2.60	2.75
Plain wire, Chicago dist. mill	2.70	2.70	2.70	...
Barbed wire, galv., P'gh.	2.55	2.55	2.55	2.80
Barbed wire, galv., Chicago dist. mill	3.65	3.65	3.65	...
Tin plate, 100 lb. box, P'gh	\$5.50	\$5.50	\$5.50	\$5.50

Old Material, Per Gross Ton:

Carwheels, Chicago	\$19.50	\$20.00	\$22.00	\$20.50
Carwheels, Philadelphia...	19.50	19.50	19.50	21.00
Heavy steel scrap, P'gh.	20.50	20.50	22.00	22.00
Heavy steel scrap, Phila.	18.00	18.50	20.00	19.00
Heavy steel scrap, Ch'go.	17.50	18.00	19.75	18.00
No. 1 cast, Pittsburgh...	20.50	20.00	19.50	21.50
No. 1 cast, Philadelphia...	19.00	19.50	20.50	21.00
No. 1 cast, Ch'go (net ton)	18.50	19.00	20.50	21.00
No. 1 RR. wrot. Phila.	20.50	20.50	21.00	22.00
No. 1 RR. wrot. Ch'go (net)	16.00	16.00	17.75	15.00

Coke, Connellsville, Per Net Ton at Oven:

Furnace coke, prompt...	\$3.75	\$3.75	\$4.15	\$4.00
Foundry coke, prompt...	4.50	4.75	5.00	4.75

Metals,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York...	15.00	15.12½	15.25	12.75
Electrolytic copper, refinery	14.37½	14.62½	14.87½	12.37½
Zinc, St. Louis	7.30	7.62½	7.85	6.65
Zinc, New York	7.65	7.97½	8.20	7.00
Lead, St. Louis	9.50	9.75	10.00	8.40
Lead, New York	9.75	10.00	10.25	8.65
Tin (Straits), New York	56.75	57.25	59.87½	51.00
Antimony (Asiatic), N. Y.	18.00	16.50	18.00	10.50

THE IRON AGE Composite Prices

Feb. 3, 1925, Finished Steel, 2.546c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.	Jan. 27, 1925, 2.560c. Jan. 6, 1925, 2.560c. Feb. 5, 1924, 2.789c. 10-year pre-war average, 1.689c.
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Feb. 3, 1925, Pig Iron, \$22.50 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.	Jan. 27, 1925, \$22.50 Jan. 6, 1925, 22.25 Feb. 5, 1924, 22.77 10-year pre-war average, 15.72
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1924	1923
High 2.789c., Jan. 15	High 2.824c., April 24
Low 2.460c., Oct. 14	Low 2.446c., Jan. 2
2.283, Feb. 26	2.207, Nov. 26

that in the past week tonnage releases have been on a heavier scale than was the case during much of last month.

In making its announcements of the higher prices on Jan. 30, the American Sheet & Tin Plate Co. emphasized that these prices were for second quarter delivery. They refer only to the common finishes of sheets and apparently no change is immediately likely in automobile body or special finishes, presumably because present prices show a fair profit to all makers.

The much discussed advance in wire products was made today, effective Feb. 4, by the leading independent Pittsburgh manufacturers. It advances all products except wire rods \$2 per ton. The American Steel & Wire Co. has not yet made any change in its prices. The various manufacturers in the past week or ten days have

been covering their customers at the prices announced late in November.

While the past week has brought a trifling recession in steel works operations in the Youngstown district, the general average of ingot output still is above 85 per cent of capacity, the loss in Youngstown being more than made good by an increase in the schedule of the Carnegie Steel Co. which for this week is 97 per cent as against last week's output of 91 per cent. A number of companies were not able to fill all specifications for January shipment and these orders, coupled with the specifications stimulated by recent price advances, seem to assure maintenance of the present rate of production, at least through this month. There is an impression, however, that the present rate of production is a little too high to be maintained without a

large export outlet, this belief being based on the more moderate ideas that prevailed just after the election as to the 1925 requirements of steel. There is very little urgency to the buying and viewing the situation from the angle of capacity and transportation facilities, the idea grows that there will be no return to the old method of buying large tonnages well in advance of actual requirements.

Primary materials continue dull and easy. While there have been sales of foundry iron as high as \$23, the business of the week has disclosed that \$22.50 no longer is the minimum. The scrap market still is trying to find a trading level and is pointed downward. Sharp curtailment of production of coke has not produced a condition of steadiness in that market.

Pig Iron.—Impressed, no doubt, by the weakness of the coke market and its probable effect upon second quarter pig iron prices, there has been much quiet unloading of brokerage holdings of foundry iron, and this selling has filled up so many consumers that producers have found it necessary to modify their price ideas if they would make sales. While there has been one or two small sales in the past week of No. 2 foundry at \$23, Valley furnace, \$22.50 has been the more common top, and there have been sales as low as \$22. Large users of foundry iron are not yet showing any interest in their second quarter requirements, but it is generally admitted that they now will have little difficulty in covering them at \$22, which is \$1 a ton below what producers had expected to get for second quarter tonnages. There has been no change in prices of other grades of iron, but they are purely nominal, since the test of demand is entirely lacking. W. P. Snyder & Co. make the average price of Bessemer iron from Valley furnaces in January \$22.895 as against \$21.885 in December and of basic iron \$22, compared with \$20.281 in December.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic	\$22.00 to \$22.50
Bessemer	23.00 to 23.50
Gray forge	21.50 to 22.50
No. 2 foundry	22.00 to 23.00
No. 3 foundry	21.50 to 22.50
Malleable	22.00 to 23.00
Low phosphorus, copper free....	23.00

Ferroalloys.—A few sales of domestic ferromanganese, possibly amounting to 500 tons, are reported at the full price, but as a general proposition, activity in this and other ferroalloys is greater in specifications against old and low-priced orders than in new business. Prices show no change. They are given on page 447.

Semi-Finished Steel.—It now appears that instead of being absolutely sold up against all the possible production for the first quarter, makers had taken all the business they wanted at the prices ruling late last year. Since demands upon nonintegrated mills for finished products have not been of a size or volume to force supplementary purchases of semi-finished steel, they have managed easily with contract shipments and there has not been much demand for the tonnage reserved for higher prices. This probably explains the recent weakening in the asking prices of some Youngstown makers of open-hearth sheet bars and why some of the price ideas of other producers as to billets, slabs and sheet bars have not been realized. There has been an ample supply of Bessemer steel right along. Some makers of forging billets are asking \$45, base, but no sales are noted at above \$42.50, and on current shipments against contracts the price has been even less. In the advance just made in wire products, wire rods are not included, and the present quotation of \$48, base, will be continued. There has been a slight recession in steel works operations among Youngstown district independents, but taking this and the nearby districts as a whole, the producing rate still exceeds 85 per cent of capacity, with the Carnegie Steel Co., which last week produced ingots at 91 per cent of capacity, scheduled this week for 97 per cent. Specifications for January were not entirely filled and with those for this month increased by the recent price advances the

present rate of production should hold through this month. Prices are given on page 447.

Iron and Steel Bars.—The Steel Corporation has met the recent advance of \$2 a ton in steel bars by independent makers and all local companies now are quoting 2.20c., base, Pittsburgh, or its equivalent. The advance by the leading maker was not effective until Feb. 2, and as yet 2.20c. is more of an asking than a selling base. The test of it will hardly come until consumers have exhausted or made considerable inroads upon lower-costing supplies. The advance has stimulated specifications on old orders. Iron bars are firm and demand is fairly active. Prices are given on page 446.

Structural Material.—The recent advance by independent companies has been followed by the Steel Corporation and all makers in this and nearby districts now are quoting 2.20c., base, Pittsburgh, or its equivalent. Specifications against both plain and fabricated material recently had been rather slow, many who had placed structural jobs being disposed to wait on more open weather before giving shipping instructions. The advance is part of an effort to put structural steel on a more profitable basis and incidentally to stimulate specifications. The new price has not yet been seriously tested. Prices are given on page 446.

Plates.—The advance of some independent makers to a base of 2.20c., Pittsburgh, has been followed by others since a week ago and the Steel Corporation also went to that base as of Feb. 2. The latter is well provided with plate business and recently took 13,000 tons for a pipe line for St. Louis. This is a water line of slightly more than 16 miles of 60-in. pipe. Some of the line is to be welded pipe, but the greater part of it is riveted. A good-sized plate tonnage is pending in 500 tank cars for the Phillips Petroleum Co. A better movement of oil and gas line pipe also is helping the plate market to some extent. Prices are given on page 446.

Rails and Track Supplies.—Higher prices in Chicago for spikes, bolts and tie plates has not yet been followed here, but in view of the higher base of steel bars it is expected that local prices will soon advance. On account of the severity of the winter in almost all parts of the country, it is believed that spring requirements of rails and track accessories will be unusually large. The current demand, however, does not reflect that prospect, specifications on old orders being fairly good, but new business is very moderate. Orders for standard rails for the first half of this year are so large that with full specifications mills will have trouble in getting them out; it is not unusual for rail specifications to lap from one half of a year into another and there probably will be no pinch since the laying period is long. Light rails still are sluggish as to sales and efforts to get higher prices are unavailing. Prices are given on page 446.

Tubular Goods.—Improvement in line pipe business is the feature of situation. The Marland Oil Co. has placed a line of 6-in. and 8-in. pipe to run from the Sour Lake field in Texas to the refinery of the Humble Oil Co., approximately 200 miles, or more than 25,000 tons. The major portion of this tonnage went to a Youngstown maker. Houston Oil Co. is making financial arrangements for a gas line in the Reagan County, Texas, gas belt. A number of smaller inquiries also are current and fuller engagement of lap weld furnace capacity appears likely. Butt weld furnace capacity is very fully engaged, as the demand is good for the sizes of pipe used in building construction. The continued rise in oil prices encourages expectations of larger demands for drill and drive pipe and casing. The idea prevails that higher pipe prices are not immediately ahead and consequently there is not the usual amount of advance buying. Boiler tubes are selling fairly well, but not well enough to put all makers in an independent position as to prices. Discounts are given on page 446.

Sheets.—As of Jan. 30, the American Sheet & Tin Plate Co. announced second quarter prices on the common finishes of sheets, meeting the advance of \$2 a

ton previously announced by several of the independent producers. There has been no change in automobile body or other special finishes and present prices of long ternes are continued. So far as second quarter business is concerned, the market is quotable at 3.70c., base, Pittsburgh, for black, 4.85c., base, for galvanized and 2.80c., base, for blue annealed, with Chicago district mill bases, \$2 a ton higher. The advance has served to increase specifications against old business entered at prices \$4 to \$5 a ton under those just announced, but has not corrected a weak situation in black sheets, which if anything is more acute than it has been. There is an oversupply of black sheets for early delivery and it is not hard to get them at 3.50c., base, Pittsburgh, and even that price has been shaded by some mills anxious for business. Black sheets even at 3.50c. have looked better to some mills than galvanized at 4.75c. in view of the high cost of zinc. There is some shading of galvanized sheets, but it takes the form of mills giving up some of their freight advantage. A good-sized tonnage was offered a Pittsburgh maker at 4.67½c., Pittsburgh, recently, the price being that named by a mill nearer the consumer. The sheet branch of the industry is operating at about 85 per cent of capacity, or at about its recent average. Prices are given on page 446.

Tin Plate.—Tin mill sizes of black sheets move up \$2 per ton for second quarter delivery; this will probably mean higher second quarter prices on general line tin cans, but the mills being almost fully sold up on tin plate for the second quarter, higher tin plate prices are not likely. April specifications for tin plate are not due until Feb. 15, and the can companies are not anticipating the date to any great extent. The leading producer still is operating full in its Western plants, but not so well elsewhere and its general average is 75 per cent of capacity. Independents are running at a higher rate and the industry as a whole is probably averaging 85 per cent.

Wire Products.—Leading local independent manufacturers today announced an advance of \$2 a ton in all wire products except wire rods, effective Feb. 4. A similar move was made by independent makers outside of Pittsburgh yesterday, but the American Steel & Wire Co. is yet to make a change, although the common belief is that it will advance prices later this week. All manufacturers have been booking a good deal of business at prices announced late last November, preparatory to the advance just announced. Nails now are priced at \$2.95, base, per keg, Pittsburgh, and plain wire \$2.75 per 100 lb. Specifications against contracts expiring around the end of January have provided makers in this district with good rolling schedules for the next 30 days, and bookings for the 60 days ending March 31 have been large because of the prospective advance in prices. Prices are given on page 446.

Cold-Finished Steel Bars and Shafting.—Demand, while good, could be better, the lack of the usual amount of business from the automobile parts makers being felt. The most favorable report heard is that new business is about equaling shipments, but companies having such an experience are not producing to capacity. Some makers are running well toward capacity, but are stocking some production. The advance in hot-rolled bars brings out intimations of an early advance in cold-finished bars. Prices are given on page 446.

Hot-Rolled Flats.—New size and gage extras given in detail elsewhere in this issue have been adopted by most manufacturers, which are expected to bring about the establishment of a common base price on hoops, bands and strips. Raising of the extras on light narrow material is expected to make possible a lower base price, while the new extras on wide stock are believed to be long enough to check waiving of extras so common last year.

Bolts, Nuts and Rivets.—While there is a reasonably good movement of bolts and nuts against old orders, there is disappointment that specifications against first quarter contracts have been rather slow so far this year. Prices are holding firmly, getting some support from the stronger tendency of steel bars. Rivet prices

also are well maintained on the general run of orders, with the demand steady rather than active. Prices and discounts are given on page 447.

Cold-Rolled Strips.—There is still room for improvement in business, the fact that the automobile industry is not buying or releasing tonnages against contracts, leaving much for other consuming industries to make good. The regular asking price is 4.15c. base Pittsburgh, but it is not believed that the large consumers have been obliged to go above 4c. base for supplies. The revision of extras on hot-rolled strips is likely to bring increased costs in the manufacture of cold-rolled strips and makers here are looking for firmer market in consequence, which has permitted a further reduction in the accumulations that came as a result of the big increase in output following the wage revision of Dec. 16 last and the prospect of high coke prices over the first half of this year. While the pressure to sell tonnages loaded on cars was at its height, standard furnace coke sold at \$3.50 per net ton at ovens and in a few instances at even less. The supply situation has been corrected to the extent that \$3.75 now is the more common minimum quotation of the standard 48-hr. fuel. Foundry coke appears to be a little bit too plentiful for the demand and prices have eased off about 25c. a ton. Producers who advanced wages in December to the so-called Frick scale still are talking about a possible reduction and in the meantime there are no negotiations for second quarter furnace coke tonnages. Coal prices continue to reflect overproduction and a very moderate demand in relation to supply. Prices are given on page 447.

Coke and Coal.—The coke market is somewhat steadier than it was recently, due to the fact that there has been a further curtailment in production. Business could be better. Prices are given on page 446.

Old Material.—A declining market rarely attracts buyers and the present one is no exception to the rule. It is still easier to buy than sell open-hearth grades of scrap. There is little or no mill buying of heavy melting grade and \$21 is becoming an exceptional sales price. No. 1 railroad steel has been sold at \$20.75 in small lots. The iron foundry grades are in fair demand and steady. Turnings are hard to sell at recent prices. Railroad offerings of steel are much smaller than they were recently. Only 1400 gross tons are offered in the Norfolk & Western list and this month's Pennsylvania list was the smallest in several months.

We quote for delivery to consumers' mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton	
Heavy melting steel	\$20.50 to \$21.00
No. 1 cast, cupola size	20.50 to 21.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	21.50 to 22.00
Compressed sheet steel	19.00 to 19.50
Bundled sheets, sides and ends	18.00 to 18.50
Railroad knuckles and couplers	23.00 to 23.50
Railroad coil and leaf springs	23.00 to 23.50
Low phosphorus blooms and billet ends	25.50 to 26.00
Low phosphorus plate and other material	24.50 to 25.00
Railroad malleable	20.00 to 20.50
Steel car axles	23.00 to 23.50
Cast iron wheels	21.00 to 21.50
Rolled steel wheels	23.00 to 23.50
Machine shop turnings	16.50 to 17.00
Short shoveling turnings	16.50 to 17.00
Sheet bar crops	21.50 to 22.00
Heavy steel axle turnings	19.00 to 19.50
Short mixed borings and turnings	16.00 to 16.50
Heavy breakable cast	18.50 to 19.00
Stove plate	17.00 to 17.50
Cast iron borings	16.50 to 17.00
No. 1 railroad wrought	17.00 to 17.50
No. 2 railroad wrought	20.50 to 21.00

Negotiations are being conducted at Youngstown for sale of the Booth foundry plant, owned by the United Engineering & Foundry Co., Pittsburgh, to a Michigan manufacturer of automotive parts. The property has been idle since 1919. The main building is a high one-story brick and steel structure 100 x 550 ft., containing cranes and foundry equipment. The site includes 12½ acres of valuable industrial land in the so-called Crab Creek section of Youngstown.

Chicago

Production of Steel Expands as Prices Advance—Pig Iron Dull—Scrap Lower

CHICAGO, Feb. 3.—Further expansion in production and fresh price advances are features of the steel market. A \$2 a ton advance in sheets announced by the Inland Steel Co. a week ago has been followed by the American Sheet & Tin Plate Co. as well as other mills. The latest commodities to be affected are wire and nails, which have been marked up \$2 a ton by the Bethlehem Steel Co. and the Youngstown Sheet & Tube Co. The Steel Corporation subsidiary is expected to take similar action at any moment. Other products which have gone up \$2 include railroad spikes and bolts, tie plates and hot-rolled strip 10 in. and over in width.

In the meantime, steel output has expanded further and for the mills rolling the heavier products such as bars, plates, shapes and rails has reached 100 per cent of capacity. Specifications received by the producers during January were very heavy and shipments for the month are believed to have equalled, if they did not actually exceed all past records. The blowing in of the eleventh blast furnace at South Chicago increases the number of active steel works stacks in this district to 32 out of a total of 34. A third Joliet furnace may go in shortly. At Duluth, where a blast furnace was recently lighted by the Minnesota Steel Co., there is talk of putting in the second stack. The position of the mills with respect to both shipments and production is excellent, particularly in the heavier products. The question uppermost in the minds of the trade is how long the present high rate of output can be maintained. In some products, notably bars, producers can see sustained operations for three to five months ahead, but a peculiarity of the present situation is that demand is not well balanced. Business in sheets and wire products, while improving, still leaves much to be desired. In steel pipe, considerable new capacity is getting into production, especially in this district. It is also a common comment that consumption by secondary lines has not increased as fast as steel production and that even in the heavier lines buyers are taking shipments faster than their operations warrant because they are willing to accumulate stocks at the favorable prices at which the material was bought. The truth of the situation will not become apparent for several weeks and for that reason market developments in February and March will be closely watched. Undoubtedly much will depend on the rapidity with which activities in secondary lines gain with the approach of spring.

Another general decline in scrap is a source of added concern and the pig iron market remains quiet, although heavy shipments of foundry coke indicate a heavier melt than had generally been estimated.

The current lull in railroad buying, particularly orders for rolling stock, is receiving notice because of the large tonnage of steel ordinarily consumed by the carriers. Early action is expected on inquiries for 1200 box and 400 general service cars for the Rock Island and 500 ore cars for the Soo Line, which will require 22,000 tons of steel.

Pig Iron.—Buying is limited, but prices are unchanged and apparently strong. An Iowa maker of heating equipment closed for 1500 tons of foundry and a southern Wisconsin melter for 1000 tons of malleable and foundry at the prevailing market quotations. Shipments of pig iron from Chicago district furnaces in January were the heaviest since 1920. Although it is possible that melters are building up their depleted stock and that therefore the iron is not going into immediate consumption, deliveries of foundry coke would indicate that melt in this district is greater than has been generally appreciated. Shipments of foundry coke in January were the largest in months.

While it is not unusual for melters to stock pig iron, coke is ordinarily used as fast as it is received. There is no question that melt in this district is improving, but the extent of that improvement is not yet susceptible to accurate appraisal. Developments during the next month or two will therefore be awaited with much interest. Although sales of Southern iron have been few, it is reported that prices have generally advanced to \$21, base Birmingham, for first quarter, and \$21.50 for second quarter. Southern iron for barge and rail shipment has advanced to \$25.68, delivered Chicago. A recent sale of electric ferrosilicon, 14 to 16 per cent, brought \$47.42, delivered. Silvery again shows evidences of weakness. Charcoal demand is fair, with prices unchanged.

Quotations on Northern foundry, high phosphorus malleable and basic iron are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards:

Northern No. 2 foundry, sil. 1.75 to 2.25	\$24.00
Northern No. 1 foundry, sil. 2.25 to 2.75	25.00
Malleable, not over 2.25 sil.	24.00
Basic	24.00
High phosphorus	24.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (barge and rail)	25.68
Southern No. 2 sil. 1.75 to 2.25	\$26.01 to 27.01
Low phos., sil. 1 to 2 per cent, copper free	33.29 to 33.79
Silvery, sil. 8 per cent	35.29
Electric ferrosilicon, 14 to 16 per cent	47.42

Ferroalloys.—A number of car lot sales of ferromanganese have been negotiated at \$115, New Orleans. Spiegeleisen is inactive.

We quote 80 per cent ferromanganese, \$122.56, delivered; 50 per cent ferrosilicon for 1925 delivery, \$85, delivered; spiegeleisen, 18 to 22 per cent, \$41.53, delivered.

Wire Products.—Two Eastern independents have advanced wire and nails \$2 a ton, but have not yet altered their prices on fence and wire rods. An advance by the Steel Corporation subsidiary which was expected last week and again early this week will probably materialize within a few days. During the week mills have received heavier specifications in all departments, but demand from jobbers is still disappointing, while business from manufacturing users has been good.

Plates.—Railroad car orders have declined sharply, but mills are still receiving heavy specifications from car builders. Fresh awards of oil storage tanks are also light, but tank fabricators have placed 1500 tons of plates with local producers during the week. The contract for a gas holder for the Louisville Gas & Electric Co., requiring 2700 tons, has been placed with the Riter-Conley Co., which will undoubtedly buy the plates from Pittsburgh mills.

The mill quotation is 2.30c., Chicago. Jobbers quote 3.10c. for plates out of stock.

Sheets.—The leading interest has followed the Inland Steel Co. in advancing sheets \$2 a ton, making the Chicago delivered prices 3.85c. on black, 2.95c. on blue annealed and 5c. on galvanized. The prices at Indiana Harbor and Gary remain 5c. per 100 lb. lower, that arbitrary price being charged for deliveries in the Chicago switching district. Mills are not yet pressing sales at the new figure which will rule on second quarter business, but the advance has served to stimulate specifications against commitments at the old figures.

Chicago delivered prices from mill are 3.75c. to 3.85c. for No. 28 black, 2.85c. to 2.95c. for No. 10 blue annealed, 4.90c. to 5c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.80c. base for blue annealed, 4.50c. base for black, and 5.50c. base for galvanized.

Rails and Track Supplies.—Spikes, bolts and tie plates have been advanced \$2 a ton to 3c., 4c. and 2.45c., respectively. Local bookings in spikes, bolts and angle bars aggregate more than 9000 tons, but no new rail orders were placed during the week. Rail specifications, however, exceeded 20,000 tons.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled from billets, 1.90c. to 2c., f.o.b. makers' mill.

Standard railroad spikes, 3c. mill; track bolts with square nuts, 4c. mill; steel tie plates, 2.45c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.55c. base, and track bolts, 4.55c. base.

Bars.—Specifications for soft steel bars have been unusually heavy and considerable tonnage has been placed at the new prices. In view of the business already on the books, mills look for a continuance of the present high rate of production through the first half of the year. Undoubtedly forward commitments in bars are heavier than in any other commodity. If consumption is not keeping pace with production, the only possible explanation for current heavy shipments is that buyers are accumulating stocks in anticipation of heavier operations. Drop forge shops of late have actually decreased their production schedules, although there has not been a corresponding reduction in their specifications for steel. Automobile parts makers find that releases from car manufacturers are not as rapid as was expected. Tractor plants, on the other hand, are busy and expect their 1925 output to exceed that of last year. Bolt and nut manufacturers are also specifying very freely against their contracts with the mills.

Mill prices are: Mild steel bars, 2.20c.; common bar iron, 2c. to 2.10c., Chicago; rail steel, 2.10c., Chicago mill.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.80c. for rounds and 4.30c. for flats, squares and hexagons; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.70c.

Structural Material.—The leading award for the week, 1600 tons for a plant for the Inspiration Copper Co., Phoenix, Ariz., went to the Kansas City Structural Steel Co. Lettings in the aggregate are not heavy, but considerable new work is coming up for bids, notably a bridge, Menasha, Wis., 2000 tons, a cement plant, Cedar Rapids, Iowa, 1200 tons; a bridge, Manitowoc, Wis., 1000 tons; a plant addition for Nash Motors Co., Milwaukee, Wis., 1000 tons.

The mill quotation on plain material is 2.30c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Cast Iron Pipe.—Municipal buying continues heavy and prices are gaining in strength, \$42 base Birmingham for 6-in. and larger being the usual minimum on current bids. At Kenosha, the American Cast Iron Pipe Co. was low bidder on 500 tons of 6- to 16-in. at slightly under that figure on Jan. 30. The United States Cast Iron Pipe & Foundry Co. has been awarded 3082 tons of 54-in. and 158 tons of special castings for Milwaukee, 1263 tons of 6- and 12-in. for Chicago, and 800 tons for St. Paul. St. Paul also let 1500 tons to the National Cast Iron Pipe Co. and will take bids Feb. 10 on 850 tons of 24- and 30-in. Fort Wayne, Ind., has placed 219 tons of 16-in. with James B. Clow & Sons and 281 tons of 6- and 12-in. with the National company. The Lynchburg Foundry Co. will furnish 1400 tons of 6- to 12-in. for Park Ridge, Ill. The Lynchburg and United States companies are each low on one-half of the 4000 tons of 6- to 12-in. on which Detroit took bids Jan. 28. Toledo will readvertise Feb. 9 for 1210 tons of 6- to 24-in.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., \$53.20 to \$54.20; 6-in. and over, \$49.20 to \$50.20; Class A and gas pipe, \$4 extra.

Bolts, Nuts and Rivets.—Specifications for bolts and nuts are only fair, although showing improvement, but production is heavy against the releases received prior to the close of the fourth quarter. The Ford Motor Co. is about to buy a month's requirements in cold-punched nuts and the Chevrolet Co. is releasing specifications for bolts, nuts and rivets to cover the same period. The attitude of the automobile builders, however, is still notably conservative. Specifications from implement makers are slowly improving.

Jobbers quote structural rivets, 3.50c.; boiler rivets, 3.70c.; machine bolts up to 3/4 x 4 in., 55 per cent off; larger sizes, 55 off; carriage bolts up to 3/4 x 4 in., 50 off; larger sizes, 50 off; hot pressed nuts, squared, tapped or blank, \$3.50 off; hot pressed nuts, hexagon, tapped or blank, \$4 off; coach or lag screws, 60 per cent off.

Hot-Rolled Strip.—This commodity is now quoted at 2.60c., Chicago, for all sizes. This means an advance of \$2 a ton for 10-in. and wider material, but the price on the narrower sizes remains unchanged.

Reinforcing Bars.—The advance in prices has driven in considerable pending tonnage and it is probable that additional protections will be exercised within the next

few days. It develops that the proposed Sears, Roebuck & Co. warehouse at Kansas City will require a total of 5700 tons, of which 5000 tons will be rail steel.

Lettings include:

Public school building, Chicago, Seventy-eighth Street and Prairie Avenue, 160 tons to Barton Spiderweb System Co.

Ell Lilly Co. warehouse, Indianapolis, 700 tons to American System of Reinforcing.

Chicago Board of Local Improvements, substructures for Sections 10, 11 and 12 and superstructure for Section 12, South Water Street double decking, 700 tons to Barton Spiderweb Systems Co.

Bridge at One Hundredth Street and Calumet River, Chicago, 208 tons to Concrete Engineering Co.

Milwaukee County Asylum, dormitory building, Wauwatosa, Wis., 250 tons to American System of Reinforcing.

Hupmobile garage, Chicago, 250 tons to Kalman Steel Co.

Illinois Women's Athletic Club building, Chicago, 300 tons of rail steel to Calumet Steel Co.

Public school building, Eighty-second and Bishop Streets, Chicago, 160 tons to Concrete Engineering Co.

Theater, Lincoln Avenue and Belmont Street, Chicago, 100 tons to Concrete Steel Co.

Markham Yards, Illinois Central Railroad, Chicago, 100 tons to Truscon Steel Co.

Iowa State College, home economics building, Ames, Iowa, 100 tons to Concrete Engineering Co.

Pending work includes:

Section B, municipal sewer, St. Paul, Minn., 500 tons, new general contract bids to be taken.

Public schools, Chicago, Sixtieth and Rockwell Streets, Seventieth and Merrill Streets and Forty-eighth Street and Karlov Avenue, 400 tons, low bidder on general contract C. J. DeWit Co., Chicago.

Grade separation work, Spring Wells, Mich., 100 tons, general contract awarded to R. A. Mercer & Co., Detroit.

South Chicago Savings Bank, South Chicago, Ivar Viche-Naess & Co., architect, Chicago, 160 tons, plans being revised.

Produce market stores for commission merchants Chicago, 2200 tons of rail steel to Inland Steel Co.

Jackson Shore Hotel, Chicago, 1000 tons of rail steel to Inland Steel Co.

Old Material.—The downward swing in prices has not yet spent its force and most grades have been carried to still lower levels. An important local mill continues to buy heavy melting as the market recedes, its last reported purchase having been at \$18 delivered. Heavy melting has now declined \$3 below the peak reached three weeks ago. A partial embargo in shipments of steel scrap to a large mill has served to intensify the current weakness of the market. Railroad offerings include the Chicago & Northwestern, 4000 tons; the Santa Fe, 1800 tons; the Pennsylvania, 35,000 tons; the New York Central, 5500 tons, and the Monon, 800 tons.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$20.00 to \$20.50
Cast iron car wheels	19.50 to 20.00
Relaying rails, 56 and 60 lbs.	25.00 to 26.00
Relaying rails, 65 lb. and heavier	26.00 to 31.00
Forged steel car wheels	22.00 to 23.50
Railroad tires, charging box size	22.50 to 23.00
Railroad leaf springs, cut apart	22.00 to 23.50
Rails for rolling	19.50 to 20.00
Steel rails, less than 3 ft.	20.50 to 31.00
Heavy melting steel	17.50 to 18.00
Frogs, switches and guards cut apart	18.25 to 18.75
Shoveling steel	17.25 to 17.75
Drop forge flashings	13.50 to 14.00
Hydraulic compressed sheets	14.75 to 15.25
Axle turnings	16.00 to 16.50
Steel angle bars	19.00 to 19.50
Steel knuckles and couplers	21.00 to 21.50
Coil springs	22.50 to 23.00
Low phos. punchings	19.50 to 20.00
Machine shop turnings	11.50 to 12.00
Cast borings	14.25 to 14.75
Short shoveling turnings	14.25 to 14.75
Railroad malleable	20.00 to 20.50
Agricultural malleable	19.00 to 19.50

Per Net Ton	
Iron angle and splice bars	19.50 to 20.00
Iron arch bars and transoms	21.00 to 21.50
Iron car axles	26.50 to 27.00
Steel car axles	19.00 to 19.50
No. 1 busheling	12.75 to 14.25
No. 2 busheling	10.50 to 11.00
Pipes and flues	12.00 to 12.50
No. 1 railroad wrought	14.00 to 14.50
No. 2 railroad wrought	15.50 to 16.00
No. 1 machinery cast	18.50 to 19.00
No. 1 railroad cast	17.00 to 17.50
No. 1 agricultural cast	17.00 to 17.50
Locomotive tires, smooth	18.00 to 18.50
Stove plates	15.00 to 15.50
Grate bars	15.00 to 15.50
Brake shoes	15.00 to 15.50

New York

Furnace Prices of Pig Iron Firm Despite Reselling—Foreign Pipe Coming In

NEW YORK, Feb. 3.—In a week of extreme quiet in the pig iron market, two factors have had considerable influence: The reselling of Buffalo iron by brokers, as reported last week, has been continued and foreign iron has been in evidence. On limited tonnages, brokers have gone as low as \$22, Buffalo, for No. 2 plain, but furnaces are adhering to the \$23, base. No. 2 Dutch iron has been sold at \$24.50, duty paid, and Dutch iron analyzing 2.50 to 3 per cent silicon has sold at \$24, duty paid, these prices being for prompt or second quarter. In eastern Pennsylvania, neither resale iron nor the foreign product has had the effect of depressing prices below \$23.50, which was paid by the Burnham Boiler Co., an important buyer. The sale of 1000 tons of No. 2 plain was made the past week at \$24, and for malleable \$24.50 has been paid. The Worthington Pump & Machinery Corporation, which has been in the market for several weeks for about 9000 tons for delivery at its various plants in the second quarter, has purchased only a small part of the tonnage, but is expected to contract for the remainder within a few days. The New York Air Brake Co. is in the market for 1200 tons. Aside from that inquiry and the Worthington tonnage, very little is now pending. Although reports from foundries are not uniform, the weight of testimony is that the melt is increasing.

We quote delivered in the New York district as follows, having added to furnace price \$2.52 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.44 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25.....	\$26.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25....	27.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75....	26.52
Buffalo, sil. 1.75 to 2.25.....	27.91
No. 2 Virginia, sil. 1.75 to 2.25.....	30.44

Ferroalloys.—Demand for ferromanganese is very light and both sales and inquiries are confined to carload and small lots at the full price of \$115, seaboard. Fairly good sales of spiegeleisen are reported at unchanged prices, but there is no large amount of business before the market.

Cast Iron Pipe.—European cast iron pipe is proving a considerable factor in the New England district. Apparently the greater part of the product now being offered is from the Pont-a-Mousson works, which has sold tonnages to private consumers and been low bidder on various municipal inquiries. This company was low bidder on about 250 tons of 4-in., 6-in. and 8-in. pipe for which Malden, Mass., recently came into the market. The award is not certain. The bid of the French company at Boston was rejected recently because a city ordinance forbids the making of a contract with any but American citizens. The French prices are usually \$2 to as much as \$5 below the domestic market and differentials are not charged. The most competitive prices are made on the smaller sizes. Issue of specifications for spring requirements by the Department of Water Supply, Gas and Electricity, New York, have been delayed for a week or two. Soil pipe is quiet, but makers are fairly well booked for 30 days or more and prices are quite firm. Recent buying of pressure pipe has been heavy and a feature of the movement was the exceptional demand for the larger sizes, principally from 12 to 24 in. Most of the purchases were for first quarter. So far, little tonnage has been booked for the second quarter.

We quote pressure pipe per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$54.60 to \$55.60; 4-in. and 5-in., \$59.60 to \$60.60; 3-in., \$69.60 to \$70.60, with \$5 additional for Class A and gas pipe. Discounts on both Northern and Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 40 to 41½ per cent off list; heavy, 50 to 51½ per cent off list.

Finished Iron and Steel.—Signs are that consumption is gradually increasing and that any excess production there may be at the present time will disappear, with the result that steel operations will keep up and the price fabric become strengthened. Jobbers are evincing renewed interest in forward needs. The volume of current buying is described as only fair and

prices on immediate delivery show occasional irregularities. Good bookings in black sheets have been put through at the 3.60c., Pittsburgh, basis, and less is heard of any lower price than this in black sheets, though it is admitted that a large and attractive order could be entered at a basis of 3.50c. No difficulty seems to be experienced in buying plates at the 2c. basis. Disappointment in various quarters that business did not expand as quick as thought likely some weeks ago has given way to expressions of satisfaction in respect to the present rate of consumption. No reports were heard of sales on heavy tonnage products at 2.20c., Pittsburgh, except some second quarter bar contracts at 2.20c. No concern is shown over reports of activity in importation of European steel.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.44c. to 2.54c.; plates, 2.34c. to 2.44c.; structural shapes, 2.44c. to 2.54c.

Warehouse Business.—All through the week new activity was seen, orders increasing in both number and size. A few orders ran into mill proportions, calling for carload lots. Reacting to increases in mill prices on most steel products, warehouse prices on black and galvanized sheets were advanced 15c. per 100 lb. Prices are firm all along the line, but other advances are not in immediate prospect. Spring steel retains its improved position, prices holding firm, while mills talk of an advance which jobbers do not think likely. Shafting and screw stock are still active after a month of fair business. January business fell to low levels, one large house having done no better than the poorest month in 1923. See page 468 for quotations.

Coke.—Accumulated stocks of furnace coke have been diminished considerably and interest in current offerings has waned. Spot coke seeking the buyer went for \$3.75 and spot foundry, \$4.75 to \$5. Operators are in some confusion over wage adjustments, some having failed to conform to wage advances of large independent interests; so second quarter bookings have been interrupted. One large interest, however, has nearly filled its books for that period and is naming \$4.75 for furnace and \$5.25 for foundry grades as its levels for such contracts. By-product coke is quoted \$10.41, Jersey City.

Old Material.—The market continues to sag, with little buying except by brokers filling contracts. The general tendency of dealers and brokers is to offer lower rather than higher prices in buying for eastern Pennsylvania consumers. No. 1 heavy melting steel is being purchased at \$17.50 to \$18.50 delivered eastern Pennsylvania, with occasional purchases reported at \$19, where a broker is filling a high priced contract. Turnings are still weak, with buying prices of \$15 and \$16 being offered, depending upon the delivery involved. Borings and turnings are still going forward to Bethlehem, for which brokers are offering \$13 per ton delivered. Pipe is reported to have been contracted for by consumers at \$18 per ton delivered. Re-rolling rails are off 50c. per ton, being quoted this week at \$15.50 to \$16 per ton, buying price, New York. On the whole, the market shows so little life that it is difficult to establish minimum prices.

Buying prices per gross ton New York follow:

Heavy melting steel, yard.....	\$13.50 to \$14.00
Heavy melting steel, railroad or equivalent	14.75 to 15.25
Rails for rolling	15.50 to 16.00
Rails for rolling	16.00 to 16.50
Relaying rails, nominal	24.00 to 25.00
Steel car axles	21.50 to 22.50
Iron car axles	27.00 to 28.00
No. 1 railroad wrought.....	16.00 to 16.50
Forged fire	12.50 to 13.50
No. 1 yard wrought, long.....	15.00 to 16.00
Cast borings (steel mill)	11.00 to 11.50
Cast borings (chemical)	17.00 to 18.00
Machine shop turnings	12.00 to 12.50
Mixed borings and turnings.....	10.75 to 11.25
Iron and steel pipe (1 in. diam., not under 2 ft. long)	13.75 to 14.25
Stove plate	12.25 to 12.75
Locomotive grate bars	14.00 to 14.50
Malleable cast (railroad)	16.00 to 16.50
Cast iron car wheels	16.00 to 17.00
No. 1 heavy breakable cast.....	13.50 to 14.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	\$17.00 to \$17.50
No. 1 heavy cast (columns, building materials, etc.), cupola size	15.00 to 15.50
No. 2 cast (radiators, cast boilers, etc.)	14.00 to 14.50

Cincinnati

Pig Iron Market Extremely Dull—Scrap Prices Again Reduced

CINCINNATI, Feb. 3.—The market was exceptionally dull last week, carload orders for prompt shipment being the predominating activity. There was one sale of 1000 tons of Southern iron for second quarter, and one of 500 tons of low phosphorus iron for the same delivery. Prices are fairly steady, ranging in the Ironton district from \$22 to \$23, Ironton, with one seller for prompt shading the lower price. In the Birmingham district, the market range is from \$20, for first quarter, to \$22, the asking price of the large producers for second quarter. There is little inquiry, the largest being for 1000 tons from a stove company in Indiana for second quarter shipment.

Based on freight rates of \$4.05 from Birmingham and \$2.27 from Ironton we quote f.o.b. Cincinnati:

Southern fdy., sil. 1.75 to 2.25 (base)	\$24.05 to \$25.05
Southern fdy., sil. 2.25 to 2.75	24.55 to 25.55
Southern Ohio silvery, 8 per cent	32.77
Southern Ohio fdy., sil. 1.75 to 2.25	24.27 to 25.27
Southern Ohio, basic (nominal)	24.27
Southern Ohio malleable	24.27 to 25.27

Sheets.—Practically all the mills have opened books for second quarter at 2.70c. for blue annealed, 3.70c. for black and 4.85c. for galvanized sheets. Orders for early shipment are coming in in good volume, but there has been little forward buying. Some mills have sold their first quarter production, and while it is possible to place small orders for immediate shipment, in some cases at slight concessions, it is getting more difficult to book tonnages for delivery earlier than the middle of March.

Structural Activity.—Two jobs, totaling 3700 tons, were awarded in this district last week, but new inquiry is confined to small jobs requiring less than 100 tons.

Reinforcing Bars.—Demand is picking up, and while most of the inquiries are for small tonnages, there are more of them being figured. Pollak Steel Co. has been awarded 900 tons for an addition to the Smith Bros. Hardware Co., Columbus, Ohio. Pending inquiries include 300 tons for a building for the Standard Sanitary Mfg. Co. at Indianapolis, and 100 tons for an addition to the Huntington National Bank, Columbus, Ohio. Bids will be asked in the near future on two buildings in Cincinnati, requiring 500 tons. Reinforcing bar prices are steady at 2c. to 2.10c., depending on whether hard steel or billet stock is used.

Warehouse Business.—Jobbers report a considerable let-up in business during the past week, due to extremely cold weather and the fact that generally speaking the last week of the month is a dull one. There have been no further price changes, but with higher prices being quoted by mills it is expected local warehouse prices will shortly advance.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4.35c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds, 4.05c.; cold-rolled flats, squares and hexagons, 4.55c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, 4.60c.; No. 28 galvanized sheets, 5.75c.; No. 9 annealed wire, \$3.25 per 100 lb.; common wire nails, \$3.25 per keg base; cement coated nails, \$3.65 per keg.

Finished Materials.—Demand for bars, shapes and plates is showing a slight improvement, but orders are mostly for fill-in purposes. Specifications continue good. Contemplated advances in finished products are expected to stimulate buying, particularly for second quarter. So far none of the Pittsburgh district mills has opened books for this delivery. Prices range from 2.10c. to 2.20c. for bars and shapes, and from 2c. to 2.10c. for plates, f.o.b. Pittsburgh. There has been some contracting by mills manufacturing wire products for February, March and April shipment, and orders this week were fairly numerous. The price situation is somewhat mixed. With some manufacturers reported to be ready to ask higher prices, it is admitted that concessions can be had from the \$2.60 price on

plain wire. Wire nails, however, are firm at \$2.85 per keg, Ironton and Pittsburgh. It is considered likely that advances of \$2 to \$3 per ton will be made this week by a number of mills. There has been a fair demand for specialties, and in the case of hoops and bands the demand is insistent from those who had not covered for first quarter requirements, and who now are having difficulty getting on rolling schedules.

Coke.—Foundry coke shipments are showing a steady increase, but the demand for furnace and domestic grades has fallen off sharply. Prices are as follows:

Connellsville furnace, \$3.75; foundry, \$4.50 to \$5.50; New River foundry, \$3.50; Wise County furnace, \$3.75; foundry, \$4.50 to \$5.50; By-product foundry, \$6, Connellsville basis.

Old Material.—Demand from consumers is lacking. Dealers, particularly the smaller ones, are more anxious to sell and prices are on the decline. Buying prices were lowered during the past week from 50c. to \$1 per ton. Dealers expect the market to stage a comeback when second quarter buying begins, and are not selling more than enough to take care of commitments.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	\$15.50 to \$16.00
Scrap rails for melting	15.00 to 15.50
Short rails	19.00 to 19.50
Relaying rails	30.50 to 31.00
Rails for rolling	17.00 to 17.50
Old car wheels	15.50 to 16.00
No. 1 locomotive tires	18.00 to 18.50
Railroad malleable	17.50 to 18.00
Agricultural malleable	16.50 to 17.00
Loose sheet clippings	12.00 to 12.50
Champion bundled sheets	13.00 to 13.50

Per Net Ton	
Cast iron borings	12.00 to 12.50
Machine shop turnings	11.00 to 11.50
No. 1 machinery cast	19.00 to 19.50
No. 1 railroad cast	16.00 to 16.50
Iron axles	23.00 to 23.50
No. 1 railroad wrought	13.00 to 13.50
Pipes and flues	9.00 to 9.50
No. 1 busheling	11.50 to 12.00
Mixed busheling	9.00 to 9.50
Burnt cast	11.50 to 12.00
Stove plate	12.00 to 12.50
Brake shoes	12.50 to 13.00

Boston

Foreign Pig Iron Offered Freely with Prices in Buyer's Favor

BOSTON, Feb. 3.—With unsold importations of pig iron here increasing, owners are anxious to sell before storage charges begin to pile up. Some English, Dutch, Continental and a little Indian iron were sold the past week, but buyers in general are holding off pending further price developments. Offers to sell No. 1 Dutch iron here have dropped from \$24.50 on dock, duty paid, to \$23.50, and round tonnages presumably could be bought cheaper. English iron has sold on about the same basis, and comparatively low prices are quoted on so-called Continental, presumably French, and on German to arrive. Instances are cited where foundries are holding up shipments on domestic because of purchases of spot foreign iron. Report has it that pressure is being brought to bear on Washington to have the import duty increased. It develops that Buffalo and eastern Pennsylvania furnaces, foreseeing cheaper foreign iron, have and are shading prices on new business. Buffalo not resale, silicon 2.25 to 2.75, is offered at \$22 furnace and eastern Pennsylvania at \$23. Malleable sold the past week at around \$28 delivered. Second quarter Alabama is \$21 furnace base, but spot can be had for \$20. Virginia is generally \$24 furnace base, but might be shaded on sizable tonnages.

We quote delivered prices on the basis of the latest reported sales as follows having added \$3.45 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia and \$2.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	\$24.65 to \$27.65
East. Penn., sil. 2.25 to 2.75	24.65 to 28.15
Buffalo, sil. 1.75 to 2.25	24.91 to 27.91
Buffalo, sil. 2.25 to 2.75	24.91 to 28.41
Virginia, sil. 1.75 to 2.25	28.92
Virginia, sil. 2.25 to 2.75	30.42
Alabama, sil. 1.75 to 2.25	29.60 to 30.60
Alabama, sil. 2.25 to 2.75	30.10 to 31.10

Shapes and Plates.—Although the market for shapes is \$2.56½ per 100 lb. delivered, or 2.20c. Pittsburgh base, mills the past week, presumably on held-over business, placed contracts at \$2.36½ delivered, or 2c. Pittsburgh base. It is believed mills have cleaned up on shipments of material sold at \$2.21½ delivered, or 1.85c. Pittsburgh, and practically so at \$2.31½ delivered, or 1.95c. Pittsburgh, and that 2c. represents the lowest of outstanding business. Plates are openly quoted at \$2.46½ to \$2.51½ per 100 lb. delivered, or 2.10c. to 2.15c. Pittsburgh base, yet contracts were made the past week at \$2.36½ delivered, or 2c. Pittsburgh base. The Providence Water Supply Board, Providence, R. I., is taking bids on about 1300 tons of plates for a pipe line. The market for bars appears steady at \$2.46½ per 100 lb. delivered, or 2.10c. Pittsburgh base. The Boston Bridge Works is the low bidder on 325 tons of fabricated steel required for a high school, Newton, Mass. No award has been made, however.

Coke.—Both the New England Coal & Coke Co. and the Providence Gas Co. announce that the February contract price on by-product foundry coke is \$12 a ton delivered in New England. That price represents an advance of 50c. a ton as compared with January, and the first change in quotations since July 11, 1924. The advance is in contrast with the trend of Connellsville foundry coke values. Both companies are sold far ahead on domestic fuel and at least one of them two to three weeks behind on deliveries. Foundry coke shipments for January were about equal to those for December, but less than those for January, 1924. Roughly, shipments of by-product foundry coke constitutes about 25 per cent of the total coke produced in New England. Foundries in general have yet to stock up for the winter.

Old Material.—Further concessions on machine shop turnings of about \$1 a ton and on rolling mill borings of 50c. represent the only price changes in the old material market the past week. Buying is practically at a standstill. Activity centers in efforts to have mills accept shipments on old contracts, in the adjustment of prices on rejected material, and on the holding up of shipments to all consuming points. A consignment of scrap car wheels was received at this port from Cuba the past week.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast	\$19.50 to \$20.00
No. 2 machinery cast	17.00 to 18.00
Stove plates	15.50 to 16.00
Railroad malleable	20.00 to 20.50

The following prices are offered per gross ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	\$13.50 to \$14.00
No. 1 railroad wrought	15.50 to 16.00
No. 1 yard wrought	14.50 to 15.00
Wrought pipe (1-in. in diam., over 2 ft. long)	12.50 to 13.00
Machine shop turnings	10.00 to 10.50
Cast iron borings, chemical	15.00 to 15.50
Cast iron borings, rolling mill	10.50 to 11.00
Blast furnace borings and turnings	9.00 to 9.50
Forged scrap	11.50 to 12.00
Bundled skeleton	11.50 to 12.00
Bundled cotton ties	10.00 to 10.50
Forged flashings	11.50 to 12.00
Shafting	19.50 to 20.00
Street car axles	19.00 to 19.50
Rails for rerolling	15.00 to 15.50
Scrap rails	13.50 to 14.00

Birmingham

Leading Producers Advance Quotations on Pig Iron for Second Quarter

BIRMINGHAM, ALA., Feb. 3.—An advance of \$1 per ton by the largest producers on No. 2 foundry, now quoted at \$22 per ton for second quarter, is announced and sales are being slowly made. Inquiries have been received which definitely tell of needs for the new period and greater confidence is expressed. Blowing in of the seventh furnace Sunday by the Sloss-Sheffield Steel & Iron Co., at Sheffield, will add 250 to 275 tons of iron daily to the product of this district. The Oxmoor furnace of the Tennessee Coal, Iron & Railroad Co. is making 200 tons of basic iron daily. Within a few days the big

No. 1 furnace of the Ensley group of the Tennessee company's blast furnaces will again be making basic iron, about 600 tons daily, the relining work being well in hand. Foundry iron is being moved about as quickly as it is being manufactured and some of the surplus iron is also being melted. The activity in iron making has caused greater activity at ore mines, coke ovens and limestone quarries than at any time since the war.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows, the lower prices being for first quarter and the higher those of the largest producers for second quarter:

No. 2 foundry, 1.75 to 2.25 sil...	\$20.00 to \$22.00
No. 1 foundry, 2.25 to 2.75 sil...	20.50 to 22.50
Basic	20.00 to 22.00
Charcoal, warm blast	32.00

Steel.—Despite the active production, steel demands are a little in excess of the make. Shipments of steel have been on a scale greater than the make and in some products warehouse stock has been used to meet requirements. A little lull was noted during the past month for a week or so but this appears to have passed and better feeling as to future business is noticed. Steel bars are quoted at 2.25c. to 2.35c., Birmingham.

Cast Iron Pipe.—Second quarter demands for pipe hold out great promise. Bids have been submitted on some good sized orders. An advance of \$1 to \$2 per ton is intimated on pressure pipe for second quarter delivery. Production of pressure pipe continues steady and shipments are equal to make.

Coke.—Demand for coke in this district is good. Furnaces are requiring a large tonnage. The Sloss-Sheffield Steel & Iron Co. has its by-product plant in full operation, is furnishing 500 tons of coal daily to the Semet-Solvay by-product plant for coke and today started 200 beehive ovens at Flat Top mines to meet demands. The independent producers of coke are finding little difficulty in marketing their output. All the by-products, with the exception of benzol from two plants, are marketed in the local territory. A local motor fuel company is taking benzol from four plants, having in the last few years developed a great market for this product. Quotations for coke show no change, foundry coke selling at \$4.50 to \$5.25.

Scrap.—The scrap market is still strong in this district though inquiries are fewer. However, dealers have considerable tonnage yet to deliver and there is much old material moving. No change in quotations was noted the past week. Heavy melting steel holds at \$15.50 to \$16.50, but consumers are not placing contracts.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	\$15.00 to \$16.00
Heavy melting steel	15.50 to 16.50
Railroad wrought	14.00 to 15.00
Steel axles	18.00 to 19.00
Iron axles	19.00 to 20.00
Steel rails	16.00 to 16.50
No. 1 cast	17.00 to 17.50
Tramcar wheels	17.00 to 17.50
Car wheels	16.00 to 17.00
Stove plate	15.00 to 16.00
Machine shop turnings	8.00 to 9.00
Cast iron borings	8.00 to 9.00
Rails for rolling	15.50 to 16.50

Buffalo

Pig Iron Market Dull—Scrap Transactions Limited to Dealers

BUFFALO, Feb. 2.—The pig iron inquiry for the week was 4000 tons, with 2000 tons of this represented by the New York Air Brake's malleable requirements. Another 500-ton inquiry was for foundry and a 500-ton lot of malleable was submitted to the sellers. Bookings were for over 2500 tons, one furnace accepting 1100 tons in all. The Wickwire-Spencer furnaces will be in operation by the latter part of March, it is thought now, and selling against their second quarter output is now going on.

We quote prices f.o.b. gross ton, Buffalo, made by furnaces as follows:

No. 2 plain, sil. 1.75 to 2.25	\$23.00
No. 2X foundry, sil. 2.25 to 2.75	23.50
No. 1 foundry, sil. 2.75 to 3.25	24.50
Malleable, sil. up to 2.25	23.00
Basic	23.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—Specifications are coming in satisfactorily, mills report, and the market continues steady under the new prices. The new price for delivered bars is 2.465c., and this price prevails on shapes. On what little plate business comes up one mill is quoting 2.265c., delivered. The sheet price has been advanced \$2 a ton, and makers are quoting here a delivered price which is the equivalent of the price at Pittsburgh plus freight charges. This sheet price is being made on prompt and second quarter material. Pipe orders are coming in very well, principally for the plumbing sizes, and the heavy volume of wire bookings continues.

Old Material.—The market's activity is limited to purchases and sales by dealers, the mills remaining quiet so far as buying is concerned. The market seems to have collapsed at other buying centers as well, dealers report, but this is believed to be a temporary condition which will shortly right itself. Any new buying, it is thought, would strengthen the market, though it is fairly generally recognized that heavy melting steel will not go above \$20 for some time. Dealers are having difficulty filling their current orders at anything less than the current selling price. Some of the consuming plants need scrap and dealers look for buying within the next two weeks. Severe weather has handicapped the work in the scrap yards during the past month.

We quote f.o.b. gross ton. Buffalo, as follows:

Heavy melting steel.....	\$19.00 to \$20.00
Low phosphorus, 0.04 and under..	22.50 to 23.50
No. 1 railroad wrought.....	16.50 to 17.00
Car wheels	20.50 to 21.00
Machine shop turnings.....	15.00 to 15.50
Cast iron borings.....	14.50 to 15.00
No. 1 busheling.....	18.00 to 19.00
Stove plate	16.50 to 17.00
Grate bars	14.50 to 15.00
Bundled sheets	14.00 to 15.00
Hydraulic compressed	18.00 to 19.00
Railroad malleable	20.50 to 21.00
No. 1 machinery cast.....	18.50 to 19.00
Iron axles	30.50 to 31.50
Steel axles	20.50 to 21.00

St. Louis

Large Tonnage of Steel Pipe and Plates for Water Works—Pig Iron Quiet

ST. LOUIS, Feb. 3.—The pig iron market is quiet. Melters are taking no interest in their second quarter requirements and buying for prompt shipment is confined largely to carload lots, but it is expected that there shortly will be considerable buying for second quarter. Makers are well booked with orders and because of this the market remains firm at virtually unchanged prices. The principal sale of the week was made by the St. Louis Coke & Iron Co., being 1000 tons to a northern Illinois melter for third quarter delivery. Reports from the lead and zinc belt are that the foundries in that district are exceedingly busy. The Federal Reserve Bank of St. Louis reports that the melt of pig iron during December for the district increased about 4½ per cent over November and was approximately 6¼ per cent greater than December, 1923.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.16 freight from Chicago, \$3.23 from Florence and Sheffield (rail and water), \$5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25...	\$26.66
Northern malleable, sil. 1.75 to 2.25	26.66
Basic	26.66
Southern fdy., sil. 1.75 to 2.25	\$26.67 to 27.17
(rail)	
Southern fdy., sil. 1.75 to 2.25	24.78 to 25.28
(rail and water).....	
Granite City iron, sil. 1.75 to 2.25	25.81 to 26.31

Finished Iron and Steel.—Following the recent advance, there has been a slowing down of buying of finished iron and steel. Manufacturers of steel products and warehouses have sufficient material on hand to take care of present business. No new inquiries have come from the railroads within the last few weeks. A number of new building projects are contemplated but have not yet reached the stage where bids have been asked. Reinforcing bars for the Roxana Building, re-

ported in last week's issue of THE IRON AGE as 250 tons, will total 450 in the revised plans. Of 13,000 tons of pipe required for the St. Louis Waterworks, one-third is welded pipe and has been awarded to the National Tube Co., while two-thirds is riveted pipe which has been let to James McNeill & Bro. Co., the plates for which will likely go to the Carnegie company. Warehousemen report a brisk business.

For stock out of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plates, 3.45c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, cold rolled, one pass, 4.80c.; galvanized steel sheets, No. 28, 5.80c.; black corrugated sheets, 4.95c.; galvanized, 5.95c.; cold rolled rounds, shafting and screws stock, 3.95c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, ¾ in. diameter and smaller, 70 per cent off list; machine bolts, 55 per cent; carriage bolts, 50 per cent; lag screws, 60 per cent; hot pressed nuts, squares, \$3.50; hexagons, blank or tapped, \$4 off list.

Coke.—Only a fair amount of industrial grades of coke is being placed now. However, consumers continue to specify shipments ahead of schedule contracts. The cold weather continues, resulting in a better demand for domestic grades.

Old Material.—Further declines in prices are reported in old materials during the week. Consumers in this district are exceedingly busy, but they have bought heavily and have ceased buying for the present. The previous high prices attracted the country dealers and receipts from this source have been very heavy. New railroad lists for the week include: Missouri Pacific, 3500 tons; Santa Fe, 4500 tons; Pennsylvania System, 36,000 tons; Big Four Lines, a blind list.

We quote dealers' prices f.o.b. consumers' works. St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	\$17.50 to \$18.00
Rails for rolling.....	21.00 to 21.50
Steel rails less than 3 ft.....	21.00 to 21.50
Relaying rails, 60 lb. and under..	25.00 to 26.00
Relaying rails, 70 lb. and over..	32.50 to 33.50
Cast iron car wheels.....	20.00 to 20.50
Heavy melting steel.....	17.00 to 17.50
Heavy shoveling steel.....	17.00 to 17.50
Frogs, switches and guards cut apart	19.00 to 19.50
Railroad springs	21.50 to 22.00
Heavy axles and tire turnings.....	14.00 to 14.50
No. 1 locomotive tires.....	20.00 to 20.50

Per Net Ton	
Steel angle bars.....	17.50 to 18.00
Steel car axles.....	20.50 to 21.00
Iron car axles.....	26.00 to 26.50
Wrought iron bars and transoms	21.00 to 21.50
No. 1 railroad wrought.....	15.50 to 16.00
No. 2 railroad wrought.....	16.00 to 16.50
Cast iron borings.....	12.50 to 13.00
No. 1 busheling.....	15.50 to 16.00
No. 1 railroad cast.....	18.25 to 18.75
No. 1 machinery cast.....	19.00 to 19.50
Railroad malleable	16.00 to 16.50
Machine shop turnings.....	9.50 to 10.00
Champion bundled sheets.....	10.00 to 10.50

San Francisco

Prices of Plates, Shapes and Sheets Advanced—Structural Awards Total 25,225 Tons

SAN FRANCISCO, Jan. 31 (By Air Mail).—Prices of plates and of structural shapes have been advanced \$1 a ton, and a price advance of \$2 a ton in galvanized sheets will be made effective Feb. 2. A proportionate price advance will probably be applied to both black and blue annealed sheets on or about the same date. Stronger bar prices are not considered unlikely in the near future.

Lettings in structural steel include a number of sizable jobs, and the aggregate for the week amounts to 25,225 tons. There are still a number of fairly large jobs pending, which are expected to be awarded within the next few weeks.

Buyers seem more inclined to enter the market and general business transacted during the past week was larger in volume than it has been since the first of the year. Interest in pig iron, however, is very quiet. Deliveries from Eastern mills are somewhat slow, which may be attributed, perhaps, in some instances, to adverse weather conditions of the Atlantic seaboard.

Pig Iron.—There is very little interest at present. The only inquiry of any consequence during the past

week was for a small tonnage of Dutch foundry iron which is being quoted 50c. higher than it was a week ago, although no sales of any size have been made.

	Per Ton
*Utah basic	\$27.25 to \$28.25
*Utah foundry, sil. 1.75 to 2.25...	27.50 to 28.50
*Scotch foundry	29.50 to 30.00
*English foundry	28.50 to 30.00
*Belgian foundry	26.00 to 28.00
*Indian foundry	26.00 to 28.00
*Dutch foundry	26.00 to 26.50
*Birmingham, Ala., foundry, sil. 2.75 to 3.25.....	31.00

*Delivered in San Francisco.

**Duty paid, f.o.b. cars, San Francisco.

Structural Shapes.—Prices of shapes have been advanced \$1 a ton, making present quotations 2.55c. to 2.60c., c.i.f. Awards during the past week call for 25,225 tons. The largest single award was the Carquinez Straits Bridge, 16,700 tons, which was taken by the U. S. Steel Products Co. Plans are being prepared for a fabricating plant at Central Avenue and 110th Street, Los Angeles, for the McClintic-Marshall Co. The contract for the American Falls Dam, American Falls, Idaho, has been awarded to the Utah Construction Co., Ogden, Utah, which bid \$1,281,000. About 500 tons of structural steel and about 550 tons of reinforcing bars will be supplied to the contractor by the Federal Government.

Plates.—A \$1 a ton price advance has been made effective, making plates now 2.55c. to 2.60c., c.i.f. Plates have advanced approximately \$7 a ton since last November in this market. Awards of the week have been comparatively small, only 1412 tons being placed. This includes 462 tons for three gas generators for the Pacific Gas & Electric Co., which was taken by the Steel Tank & Pipe Co., 250 tons for the Seattle pipe line awarded to the Seattle Boiler Works, and 700 tons to the Steel Tank & Pipe Co. by the Portland Gas & Coke Co., Portland, Ore.

Sheets.—A price advance of \$2 will be made effective in this market Feb. 2 on galvanized sheets, which will make the price 5.585c., base, c.i.f. San Francisco, and 5.685c., base, c.i.f. Los Angeles. The prices of both black and blue annealed sheets will probably be advanced in like proportion. The present base price of black sheets is 4.33c., c.i.f., and for blue annealed it is 3.42c., c.i.f.

Bars.—Higher prices for soft steel bars are considered likely in the near future, although present quotations are still 2.55c. to 2.60c., base. Soft steel bands are firm at 3.30c. to 3.35c., base. Reinforcing bars are steady at 3.35c., base, carload, and 3.80c., base, l.c.l. Reinforcing awards during the week totaled 1441 tons for jobs calling for 100 tons or more. Jobs involving smaller tonnages aggregated about 400 tons. The larger awards were:

Oakland Elks' Club, 165 tons to Edw. L. Soule & Co.
Pan-American Petroleum Corporation, new plant, Oakland, 410 tons to Edw. L. Soule & Co.
Carquinez Straits Bridge, 600 tons to U. S. Steel Products Co.
Garage, O'Farrell and Leavenworth Streets, San Francisco, 100 tons to Gunn, Carle & Co.
Sellwood Bridge, Portland, Ore., 276 tons, to Pacific Coast Steel Co.

Cast Iron Pipe.—More interest is developing and awards during the week totaled 4391 tons. Prices are firm at \$53 to \$54, base, delivered here. Recent awards include:

Santa Barbara, 4 to 12 in., Class B, cast iron pipe, 200 tons to U. S. Cast Iron Pipe & Foundry Co.
Newport Beach, 6 to 18 in., Class B, cast iron pipe, 2220 tons to American Cast Iron Pipe Co.
Sacramento, 4 to 8 in., Class B, cast iron pipe, 215 tons to U. S. Cast Iron Pipe & Foundry Co.
Wapato, Wash., 2 to 12 in., Class B, cast iron pipe, 325 tons to American Cast Iron Pipe Co.
Los Angeles, 18 in. Class B, and 16 in. Class C, cast iron pipe, 1031 tons to U. S. Cast Iron Pipe & Foundry Co.
San Diego, 4 to 16 in., Class B, cast iron pipe, 410 tons to National Cast Iron Pipe Co.

Ferroalloys.—Prices are holding very firm and interest is more or less confined to small lots. One of the local mills bought 50 tons of ferromanganese which arrived from England during the week. English ferromanganese, 80 per cent, is \$117.50 at incoming dock, duty paid. Swedish ferrosilicon, 48 to 50 per cent, is \$86, and spiegeleisen, 26 to 27 per cent is \$47.50.

Warehouse Business.—Prices are holding firm, and the demand is somewhat better than it has been.

Higher prices are considered likely in the near future, but there is some question about an upward price movement at present, because of certain local conditions. Prevailing quotations are as follows:

Merchant bars, \$3.15 base, per 100 lb.; soft steel bands, \$4 base per 100 lb.; angles, $\frac{1}{4}$ in. and larger x $1\frac{1}{2}$ in. to $2\frac{3}{4}$ in., inc., \$3.15 base, per 100 lb.; channels and tees, $\frac{1}{4}$ in. to $2\frac{3}{4}$ in., inc., \$3.75 base, per 100 lb.; angles, beams and channels, 3 in. and larger, \$3.15 base, per 100 lb.; tees, 3 in. and larger, \$3.35 base, per 100 lb.; universal mill plates, $\frac{1}{4}$ in. and heavier, stock lengths, \$3.15 base, per 100 lb.; spring steel, $\frac{1}{4}$ in. and thicker, \$6.15 base, per 100 lb.; No. 10 blue annealed sheets, \$4.20 base, per 100 lb.; No. 28 black sheets, \$5.25 base, per 100 lb.; No. 28 galvanized sheets, \$6.25 base, per 100 lb.; No. 28 galvanized corrugated sheets, \$6.30 base, per 100 lb.

Coke.—There is no marked interest in coke at present, and prices are unchanged. A shipment of 500 tons of English foundry coke arrived at Portland, Ore., during the past week and was immediately delivered to a local foundry. We quote:

English beehive, \$16 to \$18 at incoming dock, and English by-product, \$14. Birmingham, Ala., by-product, \$18.50 to \$20.50 delivered; West Virginia beehive, \$28 delivered, and Wise County, Va., beehive, \$22 delivered.

Old Material.—Prices are holding firm, and the demand is still somewhat sluggish. Stocks in yard are of moderate size. The price for heavy melting steel in Los Angeles is \$1 a ton lower than it is here.

Prices for scrap delivered to consumer's yards are as follows:

	Per Gross Ton
No. 1 heavy melting steel.....	\$11.00 to \$12.00
Scrap rails, miscellaneous.....	11.00 to 12.00
Rolled steel wheels.....	11.00 to 12.00
Couplers and knuckles.....	11.00 to 12.00
Mixed borings and turnings.....	6.00 to 6.50
Country mixed scrap.....	8.50 to 9.00

Cleveland

Prices of Plates, Shapes and Bars Marked Up —Sheets Are Weak

CLEVELAND, Feb. 3.—Prices took a more definite upward trend during the week. Following the advance during the previous week by some of the producers, other mills are now quoting steel bars, plates and structural material at 2.20c. This is an advance of \$2 a ton on steel bars and structural material and \$4 advance over prices that are still appearing on plates. As consumers are generally covered for the first quarter, little business at the advance is expected until second quarter contracts are closed. It is too early to determine whether the market will be established at the advance. In spite of the 2.20c. asking price, some mills are still quoting plates at 2c. to 2.10c.. Some of the sheet mills that had not previously marked their prices up made a \$2 a ton advance during the week and most sheet mills are now committed to the higher basis. However, the sheet market shows increasing weakness, with price concessions on all grades. An advance of \$2 a ton is expected on wire products.

Pig iron is quiet and lacks firmness. Steel specifications are holding up fairly well, although the volume of business is not so heavy as it has been. Reports from Detroit indicate that some automobile companies are increasing their production schedules this month, but others will slightly reduce their plant operations.

A lull has developed in the building field. An Ohio tank shop has taken 3500 tons of riveting steel pipes for New York, the steel for which has been placed. An inquiry is out for 900 tons of plates for car repair work for the Hocking Valley Railroad and a Louisville, Ky., shop has placed 250 tons for stills. The New York Central Railroad is inquiring for 75 Mikado type and 25 switching locomotives, the St. Louis-San Francisco Railroad for 30 locomotives and the Rock Island for 10 switch locomotives.

Pig Iron.—The market has become very dull and has a softer tone, although there is not enough business to test prices. Lake furnaces continue to quote foundry

and malleable iron at \$23 and one furnace sold 8000 tons during the week at this price, mostly for the second quarter and in lots up to 1000 tons. Cleveland furnaces are still asking \$24 at furnace for local delivery, but report no sales. In the Mahoning Valley district, \$22.50 has become the common price and there are reports of \$22 quotations, although one interest is still asking \$23. One factor that contributes to the weakness, in addition to light sales and weaker coke prices, is the foreign iron that is reaching the seaboard. This competition has caused Buffalo furnaces to go to \$22.50 for shipment to New England, although in the immediate territory they are holding to \$23. Little inquiry is pending as foundries generally are not showing any interest in placing second quarter contracts. Some producers shipped more iron than they made in January and shipments continue good, although some foundries are taking in iron somewhat faster than they are melting it and have asked furnaces to slow down somewhat on deliveries. The McKinney Steel Co. during the week has blown out one of its River furnaces for relining, leaving only two in blast.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6 rate from Birmingham:

Basic, Valley furnace.....	\$22.00 to \$22.50
N'th'n No. 2 fdy., sil. 1.75 to 2.25	24.00 to 24.50
Southern fdy., sil. 1.75 to 2.25....	26.01 to 26.51
Malleable.....	24.00 to 24.50
Ohio silvery, 8 per cent.....	\$3.52
Standard low phos., Valley furnace	29.00

Iron Ore.—Considerable ore is being figured on in long term contracts and a Pittsburgh district consumer who recently made a term contract for a round block is understood to have placed other contracts for a considerable tonnage. There is still some activity in dock ore. We note the sale of 30,000 tons of non-Bessemer dock ore, this business being taken at last year's price. There are no developments in this year's price situation.

Bolts, Nuts and Rivets.—Specifications on first quarter contracts for the three items are good, but not much new business is coming out. Prices are firm.

Semi-Finished Steel.—A Cleveland mill has sold 15,000 tons of sheet bars for the second quarter at \$39, Cleveland, making a price reduction of \$1 a ton following a similar reduction in Youngstown. There is no activity in billets or slabs, which can now be purchased at around \$38, Cleveland. The falling off in the demand for sheets is resulting in holding back some February specifications for sheet bars and the supply of semi-finished steel is more plentiful than it has been.

Steel Bars and Plates.—The Bourne-Fuller Co., Cleveland, has followed other mills in advancing steel bars to 2.20c., Pittsburgh, which is now the commonly quoted price, but this price has not yet been tested and it does not seem probable that the 2.10c. price will immediately disappear. Plate sales are being made at 2c. to 2.10c., although several mills are asking 2.20c.

Jobbers quote steel bars, 3.10c.; plates and structural shapes, 3.20c.; No. 28 black sheets, 4.35c.; No. 28 galvanized sheets, 5.45c.; No. 10 blue annealed sheets, 3.45c. to 3.60c.; cold-rolled rounds, 4c.; flats, squares and hexagons, 4.50c.; hoops and bands, 1 in. and wider and 20 gage and heavier, 3.85c.; narrower than 1 in., all gages, 4.35c.; No. 9 annealed wire, \$3.15 per 100 lb.; No. 9 galvanized wire, \$3.60 per 100 lb.; common wire nails, \$3.25 base per 100 lb.

Sheets.—Weakness in the sheet market has become more pronounced in spite of the \$2 a ton advance by most mills. A few producers regard the advance as inopportune, and so far it has not tended to bring out specifications on first quarter contracts. Some mills are curtailing production. Black sheets are commonly quoted at 3.50c., and it is reported that this price has been shaded to barrel manufacturers. Blue annealed sheets are fairly firm at 2.70c., but this price has been shaded \$2 a ton and some of the mills now need orders for this grade. Galvanized sheets are being offered at 4.60c. from mill stocks and 4.70c. for mill rollings. Automobile body sheets are still being offered at 4.60c. for the first quarter.

Reinforcing Bars.—An inquiry is out for 5000 tons of reinforcing bars for a warehouse and an administration building for Sears, Roebuck & Co., in Kansas

City, Mo., on which Cleveland contractors are figuring. For a hotel, office building and theater in Detroit 1000 tons will be required. The Patterson Leitch Co. has taken 250 tons for a garage for the May Co., Cleveland. Rail steel bars are unchanged at 1.90c. to 2c.

Strip Steel.—Prices stay around recent levels of 2.25c. to 2.40c. for wide hot-rolled strip. Bands range from 2.40c. to 2.50c. and cut hoop is quoted at 2.60c. Cold-rolled strip steel ranges from 4c. to 4.15c.

Coke.—Heating coke is weak with quotations ranging from \$3 to \$3.60. One Connellsville producer has advanced foundry coke \$1 a ton to \$6.25, enforcing the wage clause, but other quotations are unchanged at \$5 to \$5.50 for standard Connellsville makes. Ohio by-product foundry coke is quoted at \$6, Connellsville base.

Old Material.—A local mill has purchased 10,000 tons of machine shop turnings at \$16.50 delivered, or somewhat lower than recent quotations and other sales. However, the decline in price has stopped and the weakness that prevailed for two or three weeks is not so much in evidence. It is at present a dealer's market with mills taking little interest in scrap. Some of the yard dealers who have not already sold their stocks are holding the material for better prices, so that the available supply has declined. Scrap sold by Detroit automobile companies last week for shipments to Cleveland and the Valley districts brought \$14 for borings and turnings and \$15.55 for compressed sheet steel, the freight rate being \$3.03 to Cleveland and \$3.55 to Valley points. Valley dealers are offering \$17.50 for flashings and \$19 for compressed sheet steel. Railroad malleable is weaker.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel.....	\$19.50 to \$19.75
Rails for rolling.....	19.50 to 19.75
Rails under 3 ft.....	22.00 to 22.50
Low phosphorus melting.....	22.00 to 22.25
Cast iron borings.....	16.25 to 16.50
Machine shop turnings.....	16.00 to 16.50
Mixed borings and short turnings	16.25 to 16.50
Compressed sheet steel.....	17.50 to 17.75
Railroad wrought.....	17.00 to 17.50
Railroad malleable.....	21.00 to 22.00
Light bundled sheet stampings...	15.25 to 16.50
Steel axle turnings.....	18.00 to 18.50
No. 1 cast.....	19.75 to 20.00
No. 1 busheling.....	16.00 to 16.25
Drop forge flashings.....	14.75 to 15.00
Railroad grate bars.....	16.25 to 16.50
Stove plate.....	16.25 to 16.50
Pipes and flues.....	14.00 to 14.25

Philadelphia

Finished Products Advanced \$2 a Ton—Pig Iron Quiet—Scrap Shows Further Decline

PHILADELPHIA, Feb. 3.—Following the action of Chicago and Pittsburgh producers, eastern Pennsylvania mills in most cases have advanced plates, shapes and bars \$2 a ton for second quarter. A few mills are still at the previous basis or have declined to quote for second quarter until they have decided upon the prices for this delivery. Wire products have been advanced \$2 a ton to eastern Pennsylvania consumers. Despite the fact of an advancing market, buyers still seem to be unhurried in their purchases to cover second quarter requirements. Mills report a fair volume of purchasing, but orders are still confined to the smaller tonnages and warehouses complain that, although the producers are not so actively seeking the smaller warehouse type of orders as was the case during many months of last year, they are evidently willing to accept much of this pick-up business. Specifications against contracts placed during November and December show no decrease in volume and mills report a slight increase in the total of tonnage booked.

In the face of an advancing market in finished materials, buyers are inclined to temper their judgment by consideration of the situation in the coke and pig iron markets, apparently about holding their own and

the scrap market, obviously weak. Competition from imported pig iron is being encountered in the New England district and in eastern Pennsylvania. While the foreign product is selling at from 50c. to 75c. a ton less than the delivered price of domestic iron, the high quality of the Dutch and German pig iron being offered leads some sellers to believe that imported iron will not be readily eliminated entirely from the markets along seaboard.

The scrap market continues its downward movement, most grades registering a further decline of 50c. a ton this week. Buying by consumers is at a minimum and it is with great difficulty that actual buying prices are established.

Pig Iron.—Most of the eastern Pennsylvania producers are quoting \$24 a ton for the smaller lots of foundry iron for current shipment and are holding firmly to this quotation for second quarter contracts. It is conceded, however, that a substantial tonnage, sufficient to really test the market, would bring out a \$23.50 base price. Basic is inactive and quotations are nominal. Some malleable has been sold, sufficient to justify the quotation of \$24.50 to \$25 a ton, delivered. The principal feature of the pig iron market is the continuation of activity by importers of foreign pig iron. Except for isolated instances of distress tonnages of foreign pig iron, offered mostly in the Boston district, prices have been held fairly close to the current domestic market, as a rule being quoted at \$23.50 to \$24 per ton, f.o.b. cars, Philadelphia. An interesting development in recent sales of imported iron is the satisfactory analyses that have been offered. So desirable has much of the Dutch and German iron been that, it is reported, foundrymen have been inclined to delay shipments of domestic iron contracted for, in order to purchase slightly lower priced lots of the foreign product. It is pointed out by importers that both the German and Dutch irons being sold here are produced from Spanish, Algerian and Swedish ores, similar to the raw materials of eastern Pennsylvania furnaces.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to \$1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$24.26 to \$25.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	25.01 to 25.88
East. Pa. No. 1X, 2.25 to 2.75 sil.	26.01 to 26.88
Virginia No. 2 plain, 1.75 to 2.25 sil.	29.17 to 29.67
Virginia No. 2X, 2.25 to 2.75 sil.	29.67 to 30.17
Basic delivered eastern Pa.	24.25 to 24.75
Gray forge	24.00 to 24.50
Malleable	24.50 to 25.00
Standard low phos. (f.o.b. furnace)	25.50 to 26.50
Copper bearing low phos. (f.o.b. furnace)	25.50 to 26.00

Billets.—Prices are holding fairly well at \$37.50 to \$38 a ton, Pittsburgh, on rerolling billets and \$42.50 to \$43 a ton on forging quality. Transactions are confined to small lots as a rule. While consumers are evincing interest in purchasing European open-hearth billets, disinclination of the mills to quote on large tonnages and difficulty in obtaining guaranteed analyses are obstacles to such purchases.

Bars.—The market is firm at 2.10c. per lb., Pittsburgh, for prompt shipment, with 2.20c. per lb. generally quoted for second quarter. One Pittsburgh producer is holding to the 2.20c. basis for both current and second quarter delivery. The leading independent producer in eastern Pennsylvania has announced 2.20c. per lb., Pittsburgh, as its second quarter price on bars, shapes and plates.

Shapes.—Although the larger producers have gone to a 2.20c., Pittsburgh, base for second quarter and are holding to 2.10c. per lb. for current specifications, some eastern Pennsylvania mills are still quoting less than the 2.10c. base on current business. Projects involving structural steel have increased lately and the competition among fabricators is keen, resulting in efforts on their part to obtain the lowest possible protection from the mills. While sales of imported steel are being felt in the New England district, tonnages sold to eastern Pennsylvania users have not been large enough to affect the market. One importer is quoting 2.05c. per

lb., Philadelphia, on shapes. A section of the Philadelphia subway is expected to be in the market for bids in a week to 10 days. About 7000 tons of steel will be required.

Plates.—The unusual situation of a plate market ranging from 2c. to 2.20c. per lb., Pittsburgh, prevails. Certain eastern Pennsylvania mills are still accepting business at 2c. per lb. base, others hold to 2.10c. and Pittsburgh mills are quoting 2.20c. per lb., largely for second quarter tonnage. The tendency is toward the 2.20c. basis as a uniform contract price for second quarter. Current business is light. Pusey & Jones, Wilmington, Del., have received the contract for building a ferryboat.

Wire Products.—Quotations to eastern Pennsylvania consumers have been advanced \$2 a ton. Plain wire is now quoted at 2.95c. per lb., Pittsburgh, and wire nails at \$2.70 per keg, Pittsburgh. A fair volume of business is reported.

Ferromanganese.—The market continues quiet, with sales restricted to lots of 100 tons or considerably less. The price is unchanged at \$115 a ton, seaboard or domestic furnace.

Old Material.—Most grades are quotable at 50c. a ton less than last week. Buying has been almost entirely confined to fulfilment of contracts by brokers and the acceptance of small distress tonnages by the consumers at their own price. There is no market on borings and turnings, shipments on contracts having been suspended by the only remaining mill taking this grade. No. 1 forge fire is actually not quotable on the present market at more than bundled sheets, as there is no destination other than bundled sheet users for lots of this grade. No. 1 heavy melting steel is nominally \$18 to \$19 a ton, delivered, although buyers are of the opinion that purchases might be made at less than this. While brokers are desirous of selling, they are not inclined to make large contracts in the present state of the market.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel	\$18.00 to \$19.00
Scrap rails	18.50 to 19.00
Steel rails for rolling	19.00 to 20.00
No. 1 low phos. heavy 0.04 and under	23.50 to 24.00
Couplers and knuckles	22.50 to 23.50
Rolled steel wheels	22.50 to 23.00
Cast-iron car wheels	19.50 to 20.00
No. 1 railroad wrought	20.50 to 21.00
No. 1 yard wrought	18.00 to 19.00
No. 1 forge fire	15.50 to 16.00
Bundled sheets (for steel works)	15.00 to 15.50
Mixed borings and turnings (for blast furnace use)	13.00 to 13.50
Machine shop turnings (for steel works use)	15.00 to 15.50
Machine shop turnings (for rolling mill use)	16.00 to 16.50
Heavy axle turnings (or equivalent)	17.00 to 17.50
Cast borings (for steel works and rolling mill)	15.00 to 15.50
Cast borings (for chemical plants)	19.00 to 19.50
No. 1 cast	19.00 to 20.00
Heavy breakable cast (for steel plants)	16.50 to 17.50
Railroad grate bars	15.00 to 16.00
Stove plate (for steel plant use)	15.00 to 15.50
Wrought iron and soft steel pipes and tubes (new specifications)	17.50 to 18.00
Shafting	23.00 to 24.00
Steel axles	24.00 to 25.00

Imports.—In the week ended Jan. 31 300 tons of Dutch iron and 950 tons of Indian iron came into the Port of Philadelphia. A total of 7760 tons of iron ore came from Algiers. There were 288 tons of ferromanganese from the United Kingdom and 50 tons from Germany. Receipts of chrome ore totaled 3100 tons from Portuguese Africa. Only 25 tons of steel bars was received from Belgium.

The Mystic Iron Works, Boston and Everett, Mass., erecting a blast furnace, has placed a contract for four turbines with the Turban Equipment Co., Boston. It has purchased three 60-hp. and one 75-hp. motor from the General Electric Co., and a hoist engine from the Lidgerwood Mfg. Co. Cold weather has materially slowed down construction and dredging activities at the company's property.

FABRICATED STEEL BUSINESS

Bookings of 43,000 Tons and Fresh Inquiries of 15,000 Tons

Another good week of fabricated steel buying is indicated in the reports received for the larger size projects, bookings totaling 43,000 tons, including 16,700 tons for the bridge over the Carquinez Straits, California. The tonnage of new inquiries, 15,000 tons, is substantially the same as a week ago. Among awards are the following:

City of New York, magistrates' court house at 161st Street, Bronx, 150 tons, to Hay Foundry & Iron Works.

Stambaugh Auditorium, Youngstown, Ohio, 600 tons, to Fort Pitt Iron Works.

Pennsylvania Railroad, bridge in Ohio, 200 tons, to McClintic-Marshall Co.

Union Institute of Savings, Boston, 450 tons, to New England Structural Co.

Kelly-Springfield Tire Co., Cumberland, Md., 250 tons, to McClintic-Marshall Co.

First National Bank, Utica, N. Y., 1700 tons, to McClintic-Marshall Co.

Nelson House, Poughkeepsie, N. Y., annex, 200 tons, to Palmer Steel Co., Springfield, Mass.

Bangor & Aroostook Railroad, Bangor, Me., two bridges, 350 tons, to American Bridge Co.

Delaware, Lackawanna & Western Railroad, Buffalo, car repair shop, 550 tons, to Kellogg Structural Steel Co.

Cleveland police station, 570 tons, to McClintic-Marshall Co.

Ashtabula, Ohio, lift bridge, 450 tons, to Ford Pitt Bridge Works.

Iron City Sand Co., Pittsburgh, five barges, 500 tons, to Jones & Laughlin Steel Corporation.

H. M. Bylesby Co., gas holder at Louisville, Ky., 2800 tons, to Riter-Conley Co.

Nashville Trust Co., Nashville, Tenn., 900 tons, to Nashville Bridge Co.

Danbury & Bethel Gas & Electric Co., Danbury, Conn., gas holder, 300 tons, to Stacey Mfg. Co.

Coney Island Co., Cincinnati, wharf boat, 200 tons, to Miland Barge Co.

Kentucky Jockey Club, grandstand at Latonia, 140 tons, to General Iron Works Co.

Inspiration Copper Co., Phoenix, Ariz., 1600 tons, to Kansas City Structural Steel Co.

Louisville Gas & Electric Co., Louisville, gas holder, 2700 tons, to Riter-Conley Co.

Medical Arts Building, Burlington, Iowa, 250 tons, to Rock Island Bridge & Iron Works.

American Bolt Corporation, Chicago, 157 tons, to Butler Street Foundry.

Ames, Iowa, three 70-ft. plate girder spans, 133 tons, to Des Moines Steel Co.

Carquinez Straits Bridge, San Francisco, 16,700 tons, to United States Steel Products Co.

Central National Bank, Oakland, Cal., 2600 tons, to Moore Dry Dock Co.

Los Angeles Base Ball Park, Los Angeles, 3000 tons, to Llewellyn Iron Works.

Hospital, Telegraph and San Pablo Avenues, Oakland, 225 tons, to Herrick Iron Works.

Pacific Gas & Electric Co., Oakland, Station I, 100 tons, to Moore Dry Dock Co.

Pacific Telephone & Telegraph Co., Fresno, Cal., 850 tons, to Pacific Rolling Mill Co.

High school auditorium, San Diego, Cal., 300 tons, to Minneapolis Steel & Machinery Co.

Sellwood Bridge, Portland, Ore., 1250 tons, to Judson Mfg. Co.

Pacific Gas & Electric Co., San Francisco, 3 gas generators, 462 tons, to Steel Tank & Pipe Co.

Seattle, Wash., pipe line, 250 tons, to Seattle Boiler Works.

Inland Steel Co., blast furnace at Indiana Harbor, Ind., 2600 tons, to Riter-Conley Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

University Club, Boston, 400 tons.

Bath-Portland Cement Co., Sands Eddy, Pa., 800 tons.

Biajo Realty Co., New York, loft building on Thirty-ninth Street, 2000 tons and loft building on Forty-eighth Street, 2000 tons.

Kingston, N. Y., hotel, 250 tons.

Apartment house, Albany, N. Y., 250 tons.

Tampa, Fla., two bascule bridge spans, 800 tons.

Five Cent Savings Bank, Boston, refigured, 1000 tons.
High school, Newton, Mass., 325 tons.
Menasha, Wis., bridge, 2000 tons.
Cedar Rapids, Iowa, cement plant, 1200 tons.
Main Street bridge, Manitowoc, Wis., 1000 tons.
Nash Motors Co., Milwaukee, addition, 1000 tons.
Belmont Theater, Chicago, 900 tons.
Des Moines, Iowa, power plant, 500 tons.
White Motor Co., Mission and Eleventh Streets, San Francisco, 270 tons.
Office building, Seventeenth and Walnut Streets, Philadelphia, 500 tons.

RAILROAD EQUIPMENT BUYING

Ford Car Purchase—Majority of Locomotives Purchased Are for Export

New inquiries for cars called for about 330, and purchases, all by the Ford Motor Co., totaled 525. No new inquiries for locomotives were reported but a number of purchases by different companies brought locomotive buying to a total of 27. Of these 15 were for export, 3 for Chile, 9 for Guatemala and 3 for Salvador.

The Ford Motor Co. has placed 475 gondola cars and 50 flat cars with the Standard Steel Car Co.

The Rock Island is inquiring for 5 baggage and mail cars. The Hershey Chocolate Co., Hershey, Pa., is in the market for 50 to 100 glass lined tank cars.

The Quaker City Oil Line is asking for 100 50-ton, 120 40-ton and 20 30-ton tank cars.

The Western Union Telegraph Co. is inquiring for 10 to 20 tank cars.

The Palace Poultry Car Co. has placed 50 poultry cars with the Illinois Car & Mfg. Co.

The Pere Marquette is in the market for 11 steel underframes.

The Canadian National Railways have placed 5 Mountain type locomotives with the Baldwin Locomotive Works, for use on the Grand Trunk lines in the United States.

The Andes Copper Mining Co., New York, has awarded 3 Mikado type locomotives to the Baldwin Locomotive Works for export to Chile.

The International Railways of Central America have closed on 9 Consolidation type locomotives for Guatemala and 3 of the same type for Salvador with the Baldwin Locomotive Works.

The Union Electric Light & Power Co., St. Louis, has purchased one 0-4-0 switching locomotive through McClellan & Junkersfeld, New York, from the Baldwin Locomotive Works.

The Nashville, Chattanooga & St. Louis has purchased 5 Mountain type locomotives from the Baldwin Locomotive Works.

The Commonwealth Steel Co. has placed a 5-wheel switching locomotive with the Baldwin Locomotive Works.

The Baldwin Locomotive Works is in the market for a car body to be used on a steam motor car.

Detroit Scrap Market

DETROIT, Feb. 3.—General melting conditions in the district promise to be about the same during February on a tonnage basis as they were during the past two weeks. Stove, furnace and radiator manufacturers are operating at about capacity while automobile manufacturers are holding their production in line with sales without over producing during first quarter, which is in direct contrast to the same period a year ago. Prices are the same as quoted a week ago.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting steel.....	\$17.25 to \$17.75
Shoveling steel	17.25 to 17.75
Borings and short turnings.....	13.25 to 13.75
Long turnings	13.25 to 13.75
No. 1 machinery cast.....	18.50 to 19.00
Automobile cast	23.00 to 23.00
Hydraulic compressed	15.25 to 15.75
Stove plate	16.50 to 17.50
No. 1 busheling.....	14.50 to 15.00
Sheet clippings	12.50 to 13.00

Prices of Finished Iron and Steel Products (Carload Lots)

Tank Plates

F.o.b. Pittsburgh mill, base, per lb.	2c. to 2.20c.
F.o.b. Chicago, base, per lb.	2.30c.

Structural Shapes

F.o.b. Pittsburgh mills, base, per lb.	2.10c. to 2.20c.
F.o.b. Chicago, base, per lb.	2.30c.

Iron and Steel Bars

Soft steel bars f.o.b. P'gh mills, base, per lb.	2.10c. to 2.20c.
Soft steel bars f.o.b. Chicago, base, per lb.	2.20c.
Reinforcing steel bars f.o.b. P'gh mills, base, per lb.	2.20c.
Rail steel bars, f.o.b. Chicago district mills, base, per lb.	2.10c.
Common iron bars, f.o.b. Chicago, base, per lb.	2c.
Refined iron bars, f.o.b. P'gh mills, base, per lb.	3.00c. to 3.10c.
Common iron bars, eastern Pa. mill, base, per lb.	2.10c.

Hot-Rolled Flats

(Pittsburgh)

Hoops, base, per lb.	2.50c.
Bands, base, per lb.	2.40c. to 2.50c.
Hoops and bands, narrower than 1-in., base, per lb.	2.75c. to 3.75c.
Strips, 10 in. and wider, base, per lb.	2.25c. to 2.35c.
Strips, less than 10 in. wide to 3 in.	2.40c. to 2.50c.
Strips, 3 in. wide and less, base, per lb.	2.50c. to 2.60c.

Cold-Finished Steel

Screw stock and shafting, f.o.b. P'gh mills, base, per lb.	2.80c.
Screw stock and shafting, f.o.b. Chicago, base, per lb.	2.80c.
Screw stock, Worcester mills, base, per lb.	3.00c.
Screw stock, base, per lb. Cleveland.	2.85c.
Shafting, ground, f.o.b. mill, base, per lb.	3.20c.
Strips, f.o.b. P'gh mills, base, per lb.	4.00c. to 4.15c.
Strips, f.o.b. Cleveland mills, base, per lb.	4c. to 4.15c.
Strips, f.o.b. Chicago mills, base, per lb.	4.45c.
Strips, f.o.b. Worcester mills, base, per lb.	4.30c.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

Nails, base, per keg.	\$2.85 to \$2.95
Galvanized nails, 1-in. and longer, base plus.	2.25 to 2.35
Galvanized nails, shorter than 1-in., base plus.	2.50 to 2.60
Bright plain wire, base, No. 9 gage, per 100 lb.	2.60 to 2.70
Annealed fence wire, base, per 100 lb.	2.75 to 2.85
Galvanized wire, No. 9, base, per 100 lb.	3.20 to 3.30
Galvanized barbed, base, per 100 lb.	3.55 to 3.65
Galvanized staples, base, per keg.	3.55 to 3.65
Painted barbed wire, base, per 100 lb.	3.30 to 3.40
Polished staples, base, per keg.	3.30 to 3.40
Cement coated nails, base, per count keg.	2.25 to 2.35
*Bale ties, carloads to jobbers.	75, 15 and 5 per cent off list
*Bale ties, carloads to retailers.	75, 10 and 6 per cent off list
Woven wire fence, base, per net ton to retailers.	\$67.00

Chicago district mill prices are \$2 per ton above the foregoing and Chicago delivered prices are \$3 per ton above the prices f.o.b. Cleveland and Pittsburgh. Birmingham mill prices \$3 a ton higher; Worcester, Mass., mills \$3 a ton higher on production of that plant, and Duluth, Minn., mills \$2 a ton higher; Anderson, Ind., \$1 higher.

*F.o.b. Cleveland.

Sheets

Blue Annealed

(base) per lb.

Nos. 9 and 10, f.o.b. Pittsburgh dist. mill.	2.70c. to 2.80c.
Nos. 9 and 10 (base) per lb., f.o.b. Chicago dist. mills.	2.80c.

Box Annealed, One Pass Cold Rolled

No. 28 (base) per lb., f.o.b. Pittsburgh dist. mill.	3.50c. to 3.70c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.	3.70c. to 3.80c.

Galvanized

No. 28 (base) per lb., f.o.b. Pittsburgh dist. mill.	4.75c. to 4.85c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.	4.85c. to 4.95c.

Tin-Mill Black Plate

No. 28 (base) per lb., f.o.b. Pittsburgh dist. mill.	3.60c. to 3.70c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.	3.70c.

Automobile Body Sheets

No. 22 (base) per lb., f.o.b. mill.	4.75c.
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Long Ternes

No. 28 (base) 8-lb. coating, per lb., f.o.b. mill.	4.90c.
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Tine Plate

Standard cokes, per base box f.o.b. Pittsburgh district mills	\$5.50
Standard cokes, per base box f.o.b. Chicago district mills	5.60
Standard cokes, per base box f.o.b. Elwood, Ind.	5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)
(Per Package, 20 x 28 in.)

8-lb. coating, 100 lb. base	\$11.20	20-lb. coating I. C.	\$15.50
8-lb. coating I. C.	11.50	25-lb. coating I. C.	17.00
15-lb. coating I. C.	14.35	30-lb. coating I. C.	18.35
		40-lb. coating I. C.	20.35

Rivets

Large, f.o.b. P'gh and Cleveland mills, base, per 100 lb.	\$3.60
Large, f.o.b. Chicago, base, per 100 lb.	2.75
Small, f.o.b. P'gh and Cleveland mills	70, 10 and 5 per cent off list
Small (freight allowed within zone limits)	70 and 10 to 70 off list

Rails and Track Equipment

(F.o.b. mill)

Rails, standard, per gross ton.	\$43.00
Rails, light, billet, base, per lb.	1.80c. to 1.90c.
Rails, light rail steel, base, per lb.	1.65c. to 1.75c.
Spikes, 1/2 in. and larger, base, per 100 lb.	\$2.90 to \$3.20
Spikes, 1/2 in. and smaller, base, per 100 lb.	3.00 to 3.50
Spikes, boat and barge, base, per 100 lb.	3.25
Track bolts, all sizes, base, per 100 lb.	3.90 to 4.25
Tie plates, per 100 lb.	2.35 to 2.50
Angle bars, base, per 100 lb.	2.75

Welded Pipe

(F.o.b. Pittsburgh district mills)

Butt Weld

Inches	Steel Black	Galv.	Inches	Iron Black	Galv.
1/2	45	19 1/2	1/2 to 3/4	+11	+39
1/2 to 3/4	51	25 1/2	3/4	22	2
3/4	56	42 1/2	3/4 to 1	28	11
3/4 to 1	60	48 1/2	1 to 1 1/2	30	13
1 to 3	62	50 1/2			

Lap Weld

2	55	43 1/2	2	23	7
2 1/2 to 6	59	47 1/2	2 1/2	26	11
7 and 8	56	43 1/2	3 to 6	28	13
9 and 10	54	41 1/2	7 to 12	26	11
11 and 12	53	40 1/2			

Butt Weld, extra strong, plain ends

1/2	41	24 1/2	2 to 3	61	50 1/2
1/2 to 3/4	47	30 1/2	3/4 to 1	+11	+54
3/4	53	42 1/2	1	28	7
3/4 to 1	58	47 1/2	1 to 1 1/2	31	12
1 to 1 1/2	60	49 1/2		30	14

Lap Weld, extra strong, plain ends

2	53	42 1/2	2	23	9
2 1/2 to 4	57	46 1/2	2 1/2 to 4	29	15
4 1/2 to 6	56	45 1/2	4 1/2 to 6	28	14
7 to 8	52	39 1/2	7 to 8	21	7
9 and 10	45	32 1/2	9 to 12	16	3
11 and 12	44	31 1/2			

To the large jobbing trade the above discounts are increased (on black) by one point, with supplementary discount of 5 per cent and (on galvanized) by 1 1/2 points, with supplementary discount of 5 per cent.

NOTE—The above discounts on steel pipe also apply at Lorain and Youngstown, Ohio, and Wheeling, W. Va. Chicago district mills have a base 2 points less. Chicago delivered base 2 1/2 points less.

Boiler Tubes

(F.o.b. Pittsburgh)

Lap Welded Steel

2 to 2 1/4 in.	27	1 1/2 in.	Charcoal Iron	+18
2 1/2 to 2 3/4 in.	37	1 3/4 to 1 7/8 in.		+ 8
3 in.	40	2 to 2 1/4 in.		2
3 1/4 to 3 3/4 in.	42 1/2	2 1/2 to 3 in.		7
4 to 13 in.	46	3 1/4 to 4 1/2 in.		9

Beyond the above discount, 5 fives extra are given on lap welded steel tubes and 2 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	55-58	3 and 3 1/4 in.	36-39
1 1/4 and 1 1/2 in.	47-50	3 1/2 and 3 3/4 in.	37-40
1 3/4 in.	31-34	4 in.	41-44
2 and 2 1/4 in.	22-25	4 1/2 in. and 5 in.	33-37
2 1/2 to 2 3/4 in.	32-35		

Hot Rolled

3 and 3 1/4 in.	38-41	4 in.	43-46
3 1/2 in. and 3 3/4 in.	39-42		

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Carbon under 0.30 base	85 to 87 per cent off list
Carbon 0.30 to 0.40 base	83 to 85 per cent off list
Plus usual differentials and extra for cutting.	Warehouse discounts range higher.

Seamless Locomotive and Superheater Tubes

Cents per Ft.		Cents per Ft.	
2-in. O.D. 12 gage....	15	2 1/4-in. O.D. 10 gage...	20
2-in. O.D. 11 gage....	16	2-in. O.D. 7 gage.....	35
2-in. O.D. 10 gage....	17	1 3/4-in. O.D. 9 gage....	15
2 1/4-in. O.D. 12 gage...	17	5/8-in. O.D. 9 gage....	55
2 1/4-in. O.D. 11 gage...	18	5/8-in. O.D. 9 gage....	57

Prices of Iron and Steel Products and Raw Materials

Ores

<i>Lake Superior Ores, Delivered Lower Lake Ports</i>	
Old range Bessemer, 55 per cent iron.....	\$3.65
Old range non-Bessemer, 51½ per cent iron.....	4.90
Mesabi Bessemer, 55 per cent iron.....	5.40
Mesabi non-Bessemer, 51½ per cent iron.....	4.75
<i>Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore</i>	
Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian.....	9.00c. to 9.50c.
Iron ore, Swedish, average 66 per cent iron.....	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus, nominal.....	42c.
Manganese ore, ordinary, 48 per cent manganese from the Caucasus.....	40c.
Manganese ore, Brazilian or Indian, nominal.....	42c.
Tungsten ore, high grade, per unit, in 60 per cent concentrates.....	\$8.75 to \$9.00
Chrome ore, basic, 48 per cent Cr ₂ O ₃ crude, per ton, c.i.f., Atlantic seaboard.....	18.50 to 24.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS ₃ , New York.....	80c.

Coke and Coal (Per Net Ton)

Furnace coke, f.o.b. Connellsville prompt.....	\$3.75 to \$4.00
Foundry coke, f.o.b. Connellsville prompt.....	4.50 to 5.00
Mine run steam coal, f.o.b. W. Pa. mines.....	1.50 to 2.10
Mine run coking coal, f.o.b. W. Pa. mines.....	1.85 to 2.00
Mine run gas coal, f.o.b. W. Pa. mines.....	2.25
Steam slack, f.o.b. W. Pa. mines.....	1.25 to 1.30
Gas slack, f.o.b. W. Pa. mines.....	1.30 to 1.40

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton.....	\$115.00
Ferromanganese, foreign, 80 per cent, f.o.b. Atlantic port, duty paid.....	115.00
Ferrosilicon, 50 per cent, delivered.....	82.50 to 85.00
Ferrosilicon, 75 per cent.....	145.00 to 147.50
Ferrotungsten, per lb. contained metal.....	90c. to 95c.
Ferrochromium, 4 per cent carbon and up, 60 to 70 per cent Cr., per lb. contained Cr. delivered.....	11.50c.
Ferrovanadium, per lb. contained vanadium.....	\$3.50 to \$4.00
Ferrocobaltititanium, 15 to 18 per cent, per net ton.....	200.00

Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated)

Spiegeleisen, domestic, 19 to 21 per cent.....	\$33.00 to \$34.00
Spiegeleisen, domestic, 16 to 19 per cent.....	32.00 to 33.00
Ferrosilicon, Bessemer, 10 per cent, \$39.50; 11 per cent, \$42; 12 per cent, \$44.50; electric furnace ferrosilicon 10 to 11 per cent, \$38; furnace, with an advance of \$1 per unit for material above 10 per cent.	
Silvery iron, 5 per cent, \$27.00; 6 per cent, \$28.00; 7 per cent, \$29.00; 8 per cent, \$30.50; 9 per cent, \$32.50; 10 per cent, \$34.50; 11 per cent, \$37.00; 12 per cent, \$39.50.	

Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton, f.o.b. Illinois and Kentucky mines.....	\$19.00
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines.....	20.00
Fluorspar, foreign, 85 per cent calcium fluoride, not over 5 per cent silica, c.i.f. Philadelphia, duty paid, per net ton.....	18.00
Per 1000 f.o.b. works:	
Fire Clay.....	
Pennsylvania.....	High Duty \$43.00 to \$46.00 Moderate Duty \$40.00 to \$43.00
Maryland.....	48.00 to 50.00 43.00 to 45.00
Ohio.....	43.00 to 46.00 40.00 to 43.00
Kentucky.....	43.00 to 45.00 40.00 to 43.00
Illinois.....	43.00 to 45.00 40.00 to 43.00
Missouri.....	45.00 to 48.00 38.00 to 43.00
Ground fire clay, per ton.....	6.50 to 7.50
Silica Brick:	
Pennsylvania.....	40.00
Chicago.....	49.00
Birmingham.....	54.00
Silica clay, per ton.....	8.00 to 9.00
Magnesite Brick:	
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.).....	65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.).....	40.00
Chrome Brick:	
Standard size, per net ton.....	48.00

Bolts and Nuts

Machine bolts, small rolled threads.....	60 and 10 per cent off list
Machine bolts, all sizes, cut threads.....	50, 10 and 10 per cent off list
Carriage bolts, smaller and shorter, rolled threads.....	50, 10 and 10 per cent off list
Carriage bolts, cut threads, all sizes.....	50 and 10 per cent off list
Eagle carriage bolts.....	65 and 10 per cent off list
Lag bolts.....	60, 10 and 10 per cent off list
Flow bolts, Nos. 1, 2 and 3 heads.....	50 and 10 per cent off list
Other style heads.....	20 per cent extra
Machine bolts, c.p.c. and t. nuts, ½ x 4 in.	45, 10 and 5 per cent off list

Larger and longer sizes..... 45, 10 and 5 per cent off list
Hot-pressed nuts, blank or tapped, square..... 4c. off list
Hot-pressed nuts, blank or tapped, hexagons..... 4.40c. off list
C.p.c. and t. square or hex. nuts, blank or tapped..... 4.10c. off list
Semi-finished hex. nuts:

½ in. and smaller, U. S. S.....	80, 10 and 5 per cent off list
¾ in. and larger, U. S. S.....	75, 10 and 5 per cent off list
Small sizes, S. A. E.....	80, 10, 10 and 5 per cent off list
S. A. E., ½ in. and larger.....	75, 10, 10 and 5 per cent off list
Stove bolts in packages.....	80 and 5 per cent off list
Stove bolts in bulk.....	80 and 5 and 2½ per cent off list
Tire bolts.....	50, 10 and 5 per cent off list
Bolt ends with hot pressed nuts.....	50, 10 and 10 per cent off list
Bolt ends with cold pressed nuts.....	45, 10 and 5 per cent off list
Washers.....	6c. to 5.50c. off list

The foregoing are delivered prices for 1000 lb. or over, except on stove and tire bolts on which a full freight allowance is made on 300 lb. or over, for shipment within established zone limits, buyers outside of the zone paying the additional freight. Washers and lock washers are quoted f.o.b. Chicago and Pittsburgh.

Semi-Finished Castellated and Slotted Nuts

(Prices delivered within specified territories)

(To jobbers and consumers in large quantities)

Per 100 Net		Per 100 Net	
S. A. E.	U. S. S.	S. A. E.	U. S. S.
½-in.	\$0.44 \$0.44	¾-in.	\$2.35 \$2.40
¾-in. ....	.515 .515	1-in.	3.60 3.60
1-in. ....	.62 .66	1½-in.	5.55 5.80
1½-in. ....	.79 .90	2-in.	8.90 8.90
2-in.	1.01 1.05	2½-in.	12.60 13.10
2½-in.	1.38 1.42	3-in.	18.35 18.35
3-in.	1.70 1.73	3½-in.	31.00 31.00

Larger sizes—Prices on application.

Cap and Set Screws

(Freight allowed within zone limits)

Milled cap screws.....	80, 10 and 10 to 80 and 10 per cent off list
Milled standard set screws, case hardened.....	80, 10 and 10 to 80 and 10 per cent off list
Milled headless set screws, cut thread.....	80, 10 and 10 to 80 and 10 per cent off list
Upset hex. head cap screws, U. S. S. thread.....	80, 10, 10 and 10 per cent off list
Upset hex. cap screws, S. A. E. thread.....	80, 10, 10 and 10 per cent off list
Milled studs.....	80, 10, 10 and 10 per cent off list
	75 and 10 to 75 per cent off list

Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, Bessemer, 4-in. and over.....	\$37.00
Rolling billets, open-hearth, 4-in. and over.....	38.00
Forging billets, ordinary carbons.....	42.50
Sheet bars, Bessemer.....	38.00
Sheet bars, open-hearth.....	39.00 to 40.00
Slabs.....	37.00 to 38.00
*Wire rods, common soft, base, No. 5 to ¼-in.....	46.00
Wire rods, common soft, coarser than ¼-in.....	\$2.50 over base
Wire rods, screw stock.....	\$5.00 per ton over base
Wire rods, carbon 0.26 to 0.40.....	3.00 per ton over base
Wire rods, carbon 0.41 to 0.55.....	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75.....	7.50 per ton over base
Wire rods, carbon over 0.75.....	10.00 per ton over base
Wire rods, acid.....	15.00 per ton over base
Skelp, grooved, per lb.....	2.10c.
Skelp, sheared, per lb.....	2.10c.
Skelp, universal, per lb.....	2.10c.

*Chicago mill base is \$50. Cleveland mill base, \$48.

Alloy Steel

(F.o.b. Pittsburgh or mill)

S. A. E.	Series	Numbers	Bars 100 lb.
2100*	(1½% Nickel, 10 to 20 per cent Carbon)	.....	\$3.00 to \$3.25
2300	(1½% Nickel)	.....	4.75
2500	(5% Nickel)	.....	6.25 to 6.50
3100	(Nickel Chromium)	.....	3.65
3200	(Nickel Chromium)	.....	5.50
3300	(Nickel Chromium)	.....	7.50 to 7.75
3400	(Nickel Chromium)	.....	6.50 to 6.75
5100	(Chromium Steel)	.....	3.50
5200*	(Chromium Steel)	.....	7.50 to 8.00
6100	(Chromium Vanadium bars)	.....	4.25
6100	(Chromium Vanadium spring steel)	.....	4.25
9250	(Silicon Manganese spring steel)	.....	3.50
Carbon Vanadium (0.45 to 0.55 Carbon, 0.15 Vanadium)	.....		4c.
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium)	.....		4.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum)	.....		4.25
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum)	.....		3.75
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum)	.....		4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for coal drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10-in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4-in. down to and including 2½-in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

*Not S.A.E. specifications, but numbered by manufacturers to conform to S. A. E. system.

PERSONAL

E. J. Kulas Succeeds George Bartol

George Bartol has resigned as president Otis Steel Co., Cleveland, and E. J. Kulas has been elected to succeed him. Mr. Kulas is a native of Cleveland. His business career practically began with the organization of the National Electric Lamp Co. in 1901. For about 16 years he was active in this company, which in 1912 was taken over by the General Electric Co. He had a wide experience both in the United States and in Europe as manager of various branches of the Na-



E. J. KULAS



GEORGE BARTOL

tional Lamp Works. In 1913 he was general sales manager of the Peerless Motor Car Co., but on the outbreak of the great war he resigned to return to the General Electric Co. at its request to organize the manufacture of cartridge cases for the Russian Government. Later he formed the Cuyahoga Stamping & Machine Co. and was its president and general manager. The company produced more than 7,000,000 cartridge cases for the Italian and American Governments. He also formed the Federal Nut & Bolt Co., which later was sold to the Apex Electrical Mfg. Co. After the war, he became active in the Crouse-Tremaine Co. which later was the Crouse-Tremaine-Kulas Co. On behalf of this company he carried through a consolidation of large manufacturers of ice cream. His activities have been directed largely to the organization of new enterprises or to the rehabilitation of those which have called for new methods and management. On Jan. 1 he became president of the Parish & Bingham Co., Cleveland, and soon after organized the Midland Steel Products Co., which took over the Parish & Bingham Co., Detroit Pressed Steel Co., and Parish Mfg. Co. of Detroit. Mr. Kulas is now president of the company, which is the largest producer of steel automobile frames. In 1924 Mr. Kulas was elected a director of the Union Trust Co., Cleveland, and in January, 1925, a member of its executive committee.

Mr. Bartol had been connected with the Otis Steel Co. 46 years, or from about four years after it placed in operation its first plant which is now known as its Lakeside works and he has been president of the company about 30 years. He was born in Lancaster, Mass., May 16, 1857. After completing his education at the Boston Institute of Technology, he went to the Otis company as a metallurgist and worked his way up, becoming successively superintendent and general manager and finally president. Under his direction not only was the original small plant enlarged but the company built its present Riverside works that include an open-hearth department, blooming mill, plate, sheet and strip mill plants, this building program having been completed only about a year ago. In connection

with the building of the Riverside works, the company absorbed the two blast furnaces of the Cleveland Furnace Co., making the plant a complete steel making unit.

Judge E. H. Gary, chairman of the United States Steel Corporation, was guest of honor at a dinner given at the William Penn Hotel, Pittsburgh, Thursday evening, Jan. 29, by the committee sponsoring the 52-story "Cathedral of Learning," to house all of the schools of the University of Pittsburgh. Judge Gary's speech was broadcast by radio. There were many comments from listeners as to how clearly he was heard. Homer D. Williams, president Carnegie Steel Co. and a trustee of the University of Pittsburgh, was toastmaster at the dinner.

J. P. Brophy has retired from the Cleveland Automatic Machine Co., Cleveland, of which he was vice-president and general manager and a member of the board of directors. He had been associated with the company about 30 years. At the annual meeting of the company, Jan. 31, W. F. Brown, Toledo, Ohio, one of the directors, succeeded Mr. Brophy as vice-president. Instead of electing a new general manager the operation of the plant was placed in joint charge of H. M. Rich, secretary-treasurer and H. W. Ruppel who has been assistant superintendent. A. L. Garford, Elyria, Ohio, was re-elected president and H. M. Rich, secretary-treasurer. Mr. Rich and R. H. Schribner were elected new directors.

J. Lester Perry, superintendent of the North Worcester works of the American Steel & Wire Co., Worcester, Mass., has been appointed assistant district manager of the Worcester district, to succeed John B. Moss, resigned. Mr. Perry has been connected with the company for 25 years, having started in the office. He became successively foreman of the cold rolling department, assistant superintendent of the North works, superintendent of the South works, and finally superintendent of the North works, which office he has held since 1918.

George B. Mitchell, general manager of sales, Union Drawn Steel Co., Beaver Falls, Pa., has been elected vice-president of the company. He will continue to have charge of sales. Mr. Mitchell, before going with the Union Drawn Steel Co. about two years ago to succeed the late F. N. Beegle as general manager of sales, had been active in the sale of cold drawn steel for many years. He was identified with the Jones & Laughlin Steel Corporation for more than 20 years and when he left that organization in 1922, he was assistant sales manager of the cold-rolled department. Later he was associated with the Wyckoff Drawn Steel Co., Pittsburgh, as special sales representative. He is a member of the Duquesne, Union and Pittsburgh Field clubs and of the Pittsburgh Athletic Association, Pittsburgh, and of the Society of Automotive Engineers, New York.

James A. Meissner, Ensley, Ala., has been appointed superintendent of Alice blast furnaces of the Tennessee Coal, Iron & Railroad Co.

Cater Whitcomb, for the past five and one-half years' associated with the Boston office of the Griffin Wheel Co., Chicago, and in recent years assistant manager of that office, has been placed in charge of the company's office at San Francisco. Friends and business associates last week tended him a farewell dinner at the Engineer's Club, Boston.



GEORGE B. MITCHELL

Frank S. Spencer, for the past 12 years representative of Joseph T. Ryerson & Son, Inc., in New England, has become associated with Chase, Parker & Co., Boston.

William H. Goldstine has resigned as foundry manager of the Nash Motor Co., Kenosha, Wis., and will spend the remainder of the winter in Florida. His retirement follows many years of service in the foundry industry, particularly in automotive work. He has had charge of the Nash foundry since 1919.

B. F. Bart has resigned as New York district sales manager for the Standard Seamless Tube Co., Pittsburgh, and has been succeeded by W. H. Wiewel, formerly assistant general sales manager of the United Alloy Steel Corporation, Canton, Ohio.

William H. Klocke, for 20 years chief engineer of the E. W. Bliss Co., Brooklyn, N. Y., has been elected vice-president and general manager of the Keiner Mfg. Co., Richmond Hill, N. Y., manufacturing pressed forgings. He became connected with the Bliss company as a boy about 33 years ago.

Henry Harnischfeger, president Harnischfeger Corporation, Milwaukee, formerly Pawling & Harnischfeger Corporation, sailed from New York on Jan. 29, accompanied by Mrs. Harnischfeger, for a six months' cruise of the Mediterranean. On Jan. 23 Mr. Harnischfeger was host to 300 members of the P. & H. Old Timers' Club at a farewell banquet.

Benjamin Plowright has disposed of his interest in the Star Pointer Pump Co., Menasha, Wis., and retired as an officer and director. A. E. Warren, general manager, has acquired his interest.

Judd J. Brooks, Jr., has resigned as assistant to the president of the Harbison-Walker Refractories Co., Pittsburgh, but will retain a connection with the company as a member of the board of directors. Mr. Brooks has been associated with the company 22 years and until a few years ago was general manager of sales.

H. L. Barnes, formerly head of the Whitman & Barnes Co., West Pullman, Ill., and recently manager of the Sefton Mfg. Co., Chicago, has resigned to become vice-president of B. E. Schonthal & Co., dealers in railroad supplies and steel equipment, 222 South Michigan Avenue, Chicago.

William H. Lausterer, has been elected second vice-president and a member of the board of directors of the Jamestown Malleable Products Co., Jamestown, N. Y., succeeding his father, William J. Lausterer, deceased. He is also actively connected with the plant of the American Voting Machine Co., Jamestown, of which his father was president and general manager.

Ebert Mueller has been elected president and general manager of the Mueller Iron Foundry Co., Decatur, Ill.

P. O. Geier, treasurer, Cincinnati Milling Machine Co., Cincinnati, has been elected president of the Chamber of Commerce of that city. Mr. Geier at present is traveling in Europe studying the business situation, more especially in regard to machine tool prospects, and will return March 1.

Albert G. Wessling has been elected president of the Wessling Brothers Foundry Co., Cincinnati. George W. Piehl is vice-president; Henry J. Weber, secretary, and Robert L. Kruse, treasurer.



WILLIAM H. KLOCKE

Samuel Phillips of Sharon, Pa., has been elected president of the Union Limestone Co., operating at Hillsville, Pa., succeeding his father, the late Charles F. Phillips. The new president is general manager of the Stewart Furnace Co. Henry W. Heedy, vice-president; A. W. Andrews, secretary-treasurer, and J. W. Deetrick, all of Youngstown, are members of the board of directors.

J. K. Larkin, president, J. K. Larkin & Co., Inc., New York, has been elected a director of the Scranton Bolt & Nut Co., Scranton, Pa.

Lawrence Groves, for the past two years in charge of the Prague office of the Department of Commerce, has been transferred to Vienna as commercial attaché. J. F. Hodgson, now serving as assistant trade commissioner at Warsaw, has been appointed trade commissioner and designated as Mr. Groves' successor at Prague.

J. W. Lytton has been appointed special factory representative of the Swartwout Co., Cleveland, manufacturer of steam specialties, to make recommendations on the use of high pressure bucket type and low pressure float type return traps, oil and steam and air separators and feed water heaters. Mr. Lytton's activities have always been in this field.

Charles A. Woodruff, several years associated in purchasing with the automotive and allied fields, has become purchasing agent for the George W. Dunham Corporation, Utica, N. Y., manufacturer of electrical labor saving appliances. Mr. Woodruff was formerly purchasing agent of Armour & Co., Chicago; National Cash Register Co., Dayton, Ohio; Chalmers Motor Co., Detroit, and the Earl Motor Co., Jackson, Mich.

Herbert M. Wilson, secretary, Shenango Furnace Co., Pittsburgh, has been elected a director of the company and Frank A. Demms has been elected treasurer to succeed the late Henry Irwin, Jr., who was treasurer and a director of the company. Other officers of the company are William P. Snyder, Jr., president; C. D. Dyer, vice-president; George L. Colford, vice-president and general manager.

Roy Gill, long connected with the machine tool field, has joined the sales organization of the Blodgett Engineering & Tool Co., Detroit.

D. G. Munroe, formerly general superintendent of the By-Products Coke Corporation of Chicago, recently joined the organization of the Koppers Co. in a contracting capacity. He has been identified with the by-product coke industry for many years.

W. H. Lewis, formerly general superintendent of the Sharon and Farrell plants of the Carnegie Steel Co., has been elected president of the Pennsylvania Engineering Co., New Castle, Pa. Four months ago the company was placed in receiver's hands, but since then a reorganization has been effected and the receivership dissolved.

Obituaries

ARTHUR H. BROWN, for many years consulting engineer of the Thompson-Houston Co., Lynn, Mass., died at his home in that city on Jan. 27, at the age of 61. He had retired from business several years ago.

LYNN B. EASTON, general manager of the Laidlaw works, Worthington Pump & Machinery Corporation, Cincinnati, died in that city following an operation. He had been connected with the Laidlaw works for the past 20 years and succeeded Neil C. Lamont as general manager. He was a director of the Cincinnati branch, National Metal Trades Association, and was an active official of the Associated Foundries of Cincinnati. Mr. Easton was 40 years old and leaves his wife and two children.

LOUIS STINE, who retired eight years ago as head of L. Stine & Co., dealers in scrap, Beatrice, Neb., died on Jan. 11 at his home in Lincoln, Neb., aged 67 years. Mr. Stine was connected with this field over 30 years.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)		Lead		Zinc	
	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis	New York
Jan.								
28....	15.12½	14.62½	57.87½	10.00	9.75	8.00	7.65	
29....	15.12½	14.62½	57.87½	9.75	9.50	7.95	7.60	
30....	15.12½	14.62½	57.37½	9.75	9.50	7.87½	7.52½	
31....	15.12½	14.62½	....	9.75	9.50	7.85	7.50	
Feb.								
2....	15.00	14.50	56.75	9.75	9.50	7.75	7.40	
3....	15.00	14.37½	56.75	9.75	9.50	7.65	7.30	

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, Feb. 3.

Declines in quotations in the London market have adversely affected the markets here and prices are generally lower all around. Interest on the part of consumers in all the metals is lighter than for some time and the markets are all quieter and easier.

Copper.—Sharp declines in the London market in the last two days have weakened a situation which was none too strong. Electrolytic copper is available from some sources today as low as 14.62½c., delivered. Some of the larger producers are attempting to hold the market at higher levels, but are evidently not making any sales. Consumers naturally, on a declining market, are not making any purchases but are keeping in close touch with the situation. Speculation is believed to be largely the cause of the decline in London. Lake copper is quoted at 15c. to 15.12½c., delivered.

Copper Averages.—The average price of Lake copper for the month of January, based on daily quotations in THE IRON AGE, was 15.15c. The average price of electrolytic copper was 14.72½c., refinery, or 14.97½c., delivered.

Tin.—The market in general has been very quiet, with consumers refusing to enter to any extent. The heavy arrivals during the month indicate that consumers are well supplied and that there are no large quantities in the hands of dealers and importers. On Thursday, Jan. 29, the market was somewhat upset because of a sale on the New York Metal Exchange of 50 tons of February delivery at 57.80c. Had there been any demand this would have brought at least ½c. more, it is said, and thus a bad impression was created. Saturday, Jan. 31, about 100 to 150 tons changed hands and yesterday approximately 150 tons was sold. There was a sharp decline in the London market yesterday, with a slight rebound today, so that spot standard was quoted at £260, future standard at £262 17s. 6d., and spot Straits at £263 5s., all about £2 per ton below quotations a week ago. The Singapore market yesterday was £264 5s. The market here today has been quiet, with spot Straits tin quoted at 56.75c., New York. Arrivals for January are reported as 8705 tons and the deliveries into consumption 7155 tons, with 769 tons in stock and 3625 tons landing on Jan. 31. The deliveries are about what was expected and the quantity available for February will apparently be large.

Lead.—Easing in the general situation continues and prices are lower and supplies a little larger. The leading interest on Jan. 30 reduced its contract price from 10c. to 9.75c., New York, and the leading refiner in the West lowered its quotation from 9.75c. to 9.50c. Other sellers are practically on the same basis, so that these values represent the market.

Zinc.—The effect of lower prices in the London market has forced values of prime Western zinc here to lower levels in the last two days, so that the metal is quoted at 7.30c., St. Louis, or 7.65c., New York, in wholesale lots for early delivery.

Nickel.—Shot and ingot nickel in wholesale lots are quoted at 31c. to 32c. per lb., with electrolytic nickel quoted at 38c.

Antimony.—Chinese metal for spot delivery is scarce and is held as high as 18c., duty paid, with futures from 16c. up, depending on the delivery.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c. per lb., delivered.

Old Metals.—Prices are lower in sympathy with the new metal market and business is quiet. Dealers' selling prices are as follows in cents per lb.:

Copper, heavy and crucible	14.25
Copper, heavy and wire	13.50
Copper, light and bottoms	11.50
Heavy machine composition	10.75
Brass, heavy	9.00
Brass, light	7.75
No. 1 red brass or composition turnings	10.00
No. 1 yellow rod brass turnings	9.50
Lead, heavy	8.50
Lead, tea	7.25
Zinc	5.00
Cast aluminum	19.00
Sheet aluminum	18.50

Chicago

Feb. 3.—Copper, tin, lead and zinc have declined, while antimony has advanced. Demand for lead appears to have disappeared entirely and the weakness in this commodity has affected the other metals. Copper has been offered from second hands for February shipment at less than the producers' prices. A sudden shortage of antimony has developed, greatly strengthening prices on that commodity. Among the old metals, grades of copper, brass, lead and zinc have declined. We quote, in carload lots: Lake copper, 15.12½c.; tin, 58.25c.; lead, 9.50c.; spelter, 7.45c.; in less than carload lots, antimony, 19.50c. On old metals we quote copper wire, crucible shapes and copper clips, 12c.; copper bottoms, 10c.; red brass, 9c.; yellow brass, 8c.; lead pipe, 8.25c.; zinc, 4.50c.; pewter, No. 1, 30c.; tin foil, 42c.; block tin, 50c.; all buying prices for less than carload lots.

Malleable Castings Produced in December Show Sharp Rise from November

Production of malleable castings in December, 1924, by 144 plants, of which six were idle, totaled 58,773 net tons, as against 47,981 tons reported in November by 141 plants, of which four were idle. Shipments by plants reporting in December aggregated 51,441 tons, compared with 44,063 tons in November, by plants reporting for that month. Bookings in December were 46,541 tons, as against 48,866 tons in November. The operating rate of plants reporting in December was 50.9 per cent of capacity, as against 42.5 per cent in November.

Making a comparative summary for 129 identical plants, of which three were reported idle, the report of the bureau of census shows production of 54,647 tons in December, as against 44,940 tons in November; shipments of 47,912 tons in December, compared with 41,440 tons in November; and bookings of 52,992 tons in December against 46,287 tons in November. Production in December represented 51.3 per cent of the monthly capacity of 106,509 tons, compared with 42.5 per cent in November, of a monthly capacity of 105,646 tons.

St. Louis Pipe Line Contract Calls for 13,000 Tons of Plates

The city of St. Louis has awarded the contract for furnishing and installing a steel conduit 60 in. in diameter and over 16 miles in length, from the Missouri River Water Works to St. Louis. There were ten bidders on the general contract and it was awarded to the lowest bidder, Bill Hayes, Inc., contractor of Detroit, at the bid price of \$1,800,494.

The pipe required for this contract, about 87,000 feet of 60 in., has been awarded by Bill Hayes, Inc., to the James McNeil & Bro. Co., pipe manufacturer, Pittsburgh. The steel plate required will be about 13,000 tons, and will be supplied by the Carnegie Steel Co.

Personnel Management Problems Discussed

(Continued from page 403)

should never suggest that any employee, from president down, has a duty to 'support the lunchroom.' This is not seeking 'cooperation of employees.' Good food, good service and reasonable prices—and let nature, psychologically and sociologically, do the rest."

A comprehensive contribution to the subject was made by R. A. Steelman, engineer American Telephone & Telegraph Co., New York, in a paper on "Employee Lunchroom Management." The actual management of this service should, it was said, be placed in the hands of an experienced manager who understands the business of feeding people. In regard to free and paid lunchroom service, it was stated that the charge basis was more desirable. The costs to include in selling prices were taken up and the lunchroom personnel and scope of the manager's work were discussed. The proper planning of menus was emphasized as basic, and the tendency said to be toward a combination of the a la carte and table d'hôte plans. Wide variety in a given menu was stressed as one of the principal causes of high restaurant prices, although there should be variety as from day to day. Data were given on selling prices and purchasing, and also on chain lunchrooms.

Another comprehensive paper, on "Typical Lunchrooms and Variations in Methods and Results," was contributed by H. L. Rhoades, policy holders' service bureau, Metropolitan Life Insurance Co., New York. This discussion dealt with the types of industrial lunchrooms, with examples of each, problems arising as a result of variation in the size of organizations, and the importance of certain physical conditions upon patronage and general popularity of the lunchroom.

Accepted Methods of Health Supervision

"A Manual of Industrial Medicine," a paper by Dr. R. S. Quinby, service manager, Hood Rubber Co., Watertown, Mass., had for its purpose the acquainting of business executives with generally accepted methods of dealing with problems of health supervision in industry. The presentation was under four main divisions: physical examination, remedial treatment, safety and sanitation, and medical sociology.

Physical examinations were stressed as the physical inventory, the foundation on which successful industrial practice is built, rather than as a secondary refinement in industrial medicine, as frequently considered. The objectives of physical examinations were outlined and a physical classification of workers given. The examination should be made, it was stated, after the applicant has been selected but not definitely hired, the examination thus becoming part of the process of selecting and hiring. The time required for this high spot or course sieve examination is 6 to 10 min., unless unusual conditions are found. Reexamination of important members of the management every six months was suggested, and of the entire management yearly. Substandard workers should be examined as the needs of the case indicate, and workers exposed to occupational hazards should be reexamined according to the needs of the particular situation. It was stated that whenever practical it is desirable to reexamine the remaining group of workers yearly. Through dispensary visits on account of sickness or accident, opportunity is presented for the casual examination of a large number of workers.

It was stressed as of primary importance in the physical examination program that the management must be convinced of the merits of the work. The management must be the first to submit to the examination and follow the advice furnished. Older employees may be selected next, then applicants for work, and finally the remaining force. The cost of the work of physical examination, if the volume is sufficient to occupy a full-time physician, was put at probably less than \$1 per examination. It was stated that on a part-time basis in a smaller factory the cost can be made comparatively low.

In discussing remedial treatment, Dr. Quinby said that the location of the dispensary or branch dispensaries is important, and that a factory dispensary should be workable and livable. Most of them, it was stated, have too much equipment and too much of the atmosphere of an operating room. It was given as a general statement that a full-time physician and nurse can care for the dispensary work of a plant employing up to 1500 people. An extra nurse will be needed for each additional 1000 employees, while a full-time physician will be needed for each additional 1500 to 2000 people. This varies, however, according to the scope and character of the health supervision attempted.

The scope of industrial medical practice was outlined, and also the establishment of facilities for dental, ocular, nose and throat work. The importance of simple yet adequate records of dispensary treatments was emphasized. In discussing safety and sanitation, it was mentioned that an important problem is the early treatment of trivial injuries to prevent infection, one of the greatest single causes of disability from accidents. The industrial physician's connection with plant sanitation and occupational diseases was briefly discussed, and a section under medical sociology points out some of the activities which may be developed into opportunities for furtherance of the health program.

Measuring and Grading Supervisory Forces

Interest was shown in a report on "Measuring and Grading the Supervisory Forces," which was read by W. D. Stearns, works department, Westinghouse Electric & Mfg. Co., East Pittsburgh, and chairman of the association's committee engaged in that investigation. The purposes, scope and method of measuring and grading are outlined, and the data submitted by several companies are included. Most of the report is devoted to what others are doing. While not complete, the information set forth is expected to stimulate interest in the subject and lead to an exchange of ideas.

Several tangible elements such as attendance and various items having to do with the performance and efficiency of a supervisor, including overdue orders, amount of spoiled work, labor turnover, etc., can, it is stated, be measured. Many important but less tangible elements cannot be measured, these being largely matters of opinion, and it is these characteristics which are included in the report under the term "grading."

Measuring and grading at intervals is said to show tendencies of the individual and compares him with himself over a period of time. It also compares him with others. Such a record is of value for purposes of promotion, pay increase, lay off, and as an aid in better placement. The chief advantage was thought to lie in the indirect effect of the one being graded and on the one doing grading. The qualities chosen should be comparatively few, 5 to 10, and should be those qualities which can be judged with some degree of accuracy and which affect the work being done, or those qualities which if developed may fit the employee for doing different or better work. The characteristics should be clearly defined and explained. The cooperation of those at or near the top must be obtained to make the plan effective.

Not many companies have done practical work along this line for any length of time, although several are said to have been considering it. Many believe that it is an essential factor in right industrial relations, because it is necessary for a organization to have some opinion of its employees, and if employees are to be graded it is better that they be graded on a scientific basis.

Americanization Discussed at Training Session

A report of the classroom training of employees was presented by G. B. Thomas, educational director, Bell Telephone Laboratories, Inc., New York, and other members of the committee on training. Group meetings on training followed, with F. A. Pope, supervisor of training, Worthington Pump & Machinery Corporation, New York, presiding at the group dis-

cussing the training of skilled workers and technical men. Another group, with L. H. Burnett, assistant to the president, Carnegie Steel Co., Pittsburgh, presiding, discussed the training of unskilled workers, including Americanization. Difficulty in keeping Americanization classes going was expressed by some. In one plant, having success in conducting these classes, the basic idea in regard to the work has been to help the men become citizens, 300 or 400 of the workers having been assisted in becoming naturalized. The school is held in the plant and the teachers are supplied by the board of education. A social program consisting mainly of entertainments is a feature. Success is largely attributed to having the assistant superintendent of the plant in charge of the school, and having the foremen part of it. Classes are held twice a week.

Care in not giving the foreign born the impression of being forced into citizenship or education was thought to be a factor in the success of the school in another plant. Those who are not educated in their own language should, it was found, be segregated from the educated, otherwise the less educated will drop out. Teachers especially trained for this work were said to be best. The qualifications of a good teacher were discussed, and it was stated that the teacher should have a social interest, see the background of the foreign born, see that they are bringing something here and not to look down on them.

At a session devoted to the "Participation of Public Schools in Apprentice Training," opinion was expressed generally that cooperation between industry and our school system is necessary. The association's committee on this work, headed by A. B. Gibson, manager Westinghouse Technical Night School, has been active. Franklin T. Jones, superintendent of training, White Motor Co., Cleveland, made a definite contribution to the subject in a report under the title of "Apprenticeship as Much a Public School as an Industrial Problem." A comprehensive paper was that of H. A. Frommelt, apprentice superintendent, Falk Corporation, Milwaukee, on "An Adequate National Apprenticeship Program Must Make Use of the Public Schools." Another report was on "Cooperative Apprenticeship—a Solution," with conclusions and recommendations of the association's committee on relations with public schools. C. S. Coler, manager, educational department, Westinghouse Electric & Mfg. Co., East Pittsburgh, presided.

"Placing and Introducing Employees," a report of the committee on employment methods, was presented at the opening session, Jan. 29. The subject was dealt with in three parts: instruction, introduction and follow-up.

At another session the present developments and possibilities of "Man-Job Analysis" was outlined in a paper by Prof. R. S. Uhrbrock, University of Wyoming.

Report on Essential Personnel Records

A committee report on essential personnel records was submitted by Bryce Haynes, industrial relations department, United States Rubber Co., New York, and chairman of the committee. These records, it was pointed out, vary as between office and plant and also as between large and small plants. The report is comprehensive, describing the various records and discussing the form and items that should be included on each record. The records and reports recommended are intended to aid in the efficient operation of the personnel department, and the general trend of the committee's report is in the direction of reducing the number of records kept, rather than increasing them. Nine groups of records are recommended. These are the qualification and application records; employee service and production records; group report on average earnings; medical and accident reports and records; labor turnover report; report of absenteeism; labor stability report (length of service); nationality report; and periodical cost and expense report.

Another committee report was on the subject of "Payroll Administration." Among those contributing to the presentation were H. L. Sanford, Federal Reserve Bank of New York, on "A Survey of Payroll Administration"; W. J. Vega, chief of payroll bureau,

New York Edison Co., on "Timekeeping—a Technical Study"; and H. M. Jefferson, Federal Reserve Bank of New York, on "Experiences In, and Arguments For and Against Paying by Check." Group meetings followed the presentation of this report.

Economist an Aid to Management

An address developing marked interest was that of L. D. H. Weld, manager commercial research department, Swift & Co., Chicago, on the subject of the "Economist as an Aid to Management." It dealt with the economist who enters business.

Economics, it was pointed out, is a broad science, embracing a number of different branches or divisions, and it is beyond the power of any one man to be an expert or authority in all of them. The potential value of an economist was said to depend upon his field of specialization and on the needs of the particular business house. Therefore it was thought timely to differentiate between the different kinds of economists, the type of work that they are equipped to undertake and how they may be of value to various kinds of business organizations. Dr. Weld presented an illuminating outline of the various types of economists and their respective fields.

The principal lines of work in which the economist may be of value to the management of a large organization were discussed. These activities were: Sales research; relation to general business conditions; raw material markets; labor policy; relations with the Government and the public; advice on general economic problems; foreign trade policy; organization matters; budgetary control; financial policy; and general statistics. It was explained that no business houses are seeking expert advice on all these matters.

In the discussion which followed Dr. Weld's address, Dr. A. J. Beatty, educational director, American Rolling Mill Co., Middletown, Ohio, who presided at the session, outlined the work of the association's committee on economics. This work embraces: Economics from the standpoint of the management of large companies; training in economics for subexecutives and for the rank and file; and the dissemination of right economic facts to counteract unsound theories, the latter being characterized as a distinctive and important phase of the work. Copies of the economic bulletin issued by the training department of the American Rolling Mill Co. were distributed. These are single mimeographed sheets on which various economic facts and principles are outlined simply.

Army and Business Organization Compared

A session devoted to the "What Can Business Learn from Modern Army Organization" was a feature of the convention. Two problems emphasized by Col. R. I. Rees, assistant vice-president American Telephone & Telegraph Co., New York, in his address on "Army and Business Organization Compared," were the elimination of the business cycle and the insurance of enduring peace among all nations.

In pointing out a few of the elements in army organization and operation which are worthy of study by management in industry, he said: "War is the oldest business in the world. It has always been the business of management of armies to attain the maximum effect of man-power. Preeminence therefore has always been given to personnel problems and emphasis on the human side of organization. Tables of organization are worked out in minute detail in order that every individual shall know his exact position in each military unit. As a result of this close attention to organization the lines of responsibility and authority are closely defined. There is never a question as to the correct channels of communication."

"Another outstanding feature is the development of all personnel in knowledge of the business of war. In the army this is comprehended in the broad term of indoctrination, which means a thorough understanding on the part of all of the fundamental principles of war which forms the basis of all training."

The principles enumerated were: The principle of the objective; of offensive; of mass; of economy of force; of movement; of surprise; of security; of sim-

plicity; and of cooperation. "Methods of war," continued Colonel Rees, "are the means employed to make use of these principles. All officers and soldiers are charged with inaugurating and perfecting methods for overcoming difficulties of time, space, terrain, and weather for improving our own strength, morale, communication, supply and armament. The doctrines, principles and methods of war are inculcated throughout the personnel of the army by a carefully considered system of training."

Some of the general principles on which this training is based, taken from the basic training regulations known as the "Training System of the Army," were given. The essential elements of training were shown to compare very closely with those problems of personnel management, which are receiving serious atten-

tion at the present time. These elements are job analysis and classification, minimum specifications prepared for every type of assignment, authorized in tables of organization based on job analysis.

Training in the army is carried on by the applicatory method by the development of a proper sequence of teaching units. Careful distinction is made between automatisms and judgment. The army, it was said, is developing and using tests for objective measurements in the usual classification of intelligence tests, aptitude tests, progress tests, proficiency tests, and the determination of standards of proficiency.

Another address which was highly regarded was by John Mills, Bell Telephone Laboratories, Inc., New York, who outlined problems in selecting and placing the college graduate in business.

SHOW LITTLE CHANGE

Slight Reduction in Operations of Iron and Steel Plants in Youngstown District

YOUNGSTOWN, Feb. 3.—While schedules of Mahoning and Shenango Valley iron and steel producers this week indicate moderate deflections from the rate of production maintained the past two months, nevertheless output is still averaging in excess of 90 per cent. Sheet makers, in fact, report an improvement in the volume of specifications issued by consumers since announcement of the increase in price of \$2 per ton, affecting black, blue annealed and galvanized sheets.

Buyers show a disposition to secure a larger tonnage for delivery over the remainder of this quarter than would have been the case otherwise, and thus get the benefit of contracts placed at the lower prices. Producers believe there will be considerable ordering the next two months for stock purposes against anticipated spring requirements, as well as against current needs.

The Youngstown Sheet & Tube Co. is now getting hot metal from Jeannette blast furnace in its Brier Hill group at Youngstown, relighted last week. With this stack in action, 33 of the 45 blast furnaces in the two valleys are in operation, representing a production rate of 85 per cent.

Semi-finished steel output likewise continues at a high rate, though down moderately from immediately preceding weeks. Of 52 independent open hearth furnaces, 45 are melting, while the Steel Corporation subsidiaries in this district are operating 28 of 30 open hearths.

The Sheet & Tube company has cut its number of active open hearths at its East Youngstown plant from 11 to nine and at its Brier Hill works from 11 to eight. The Republic Iron & Steel Co. is operating 10 open hearths, a reduction of one from the week previous, and comparing with a recent output embracing 13 furnaces.

The Republic company has been obliged to suspend two sheet mills in its group at Niles, leaving 14 under power of a total of 18. The inactive units are included among the company's older-type mills at Niles. Its entire sheet mill plant commenced operations this week on Monday morning, instead of Sunday midnight as usual.

Of 127 sheet and jobbing mills in the Mahoning Valley, 108 are under power.

Such interests as the Carnegie Steel Co., the Trumbull Steel Co., the Sharon Steel Hoop Co., the A. M. Byers Co., the Mahoning Valley Steel Co. and the Falcon Steel Co. are maintaining production close to a capacity rate.

A report on the property of the Radium & Rare Earths Treatment Co., 31 Queen Street, Melbourne, Australia, contains descriptions of deposits of uranium, vanadium and titanium as well as cerium which the company expects to refine and place on the market.

CUTTING DOWN LOST TIME

Worcester Industries, in Competition, Reduce Accidents Nearly 40 Per Cent

WORCESTER, MASS., Feb. 2.—The Worcester County Safety Council has demonstrated again the cumulative results of its lost-time accident contest, conducted among its 45 member firms, in reducing the hazard of industry. Under the terms of this contest the members, comprising most of the principal industries of Worcester, and some of those of other Worcester County cities and towns, make a monthly report of accidents to employees which entail the loss of a single day of time or more. Each month a list is prepared of those firms which have had no accident, or less than one accident to every 500 employees. At the end of each year the results for the 12 months are summarized, and the firms ranked in the order of their percentage of freedom from accident.

In 1924 the average number of employees represented in the members' reports was 24,383, as compared with 23,419 in 1923. In spite of a greater number of workers the number of accidents among them in a year dwindled from 1019 in 1923 to 639 in 1924, and the number of lost-time days involved by the accidents fell from 16,764 to 10,810. Two firms employing respectively 131 and 48 persons, the former the National works of the Wickwire-Spencer Steel Corporation, had no accident in the entire year. Third in rank is the Norton Co., employing in the year in its wheel and machine divisions an average of 1758 people, with only five lost-time accidents, involving absence from employment of only 98 days.

Individual Cases Cited

The Graton & Knight Mfg. Co., leather belting, with 1122 employees, ranking fifth in the contest, had 10 accidents, with 127 lost-time days; the South works, American Steel & Wire Co., ranking No. 10, with 2324 employees, had 23 accidents, involving 1451 days. These works include many so-called hazardous employments, including steel plant, blooming and rod mills and wire drawing mills. Central works of the same company, with 204 workers, had three accidents, with loss of 132 days, and North works, with 1231 employees, 29 accidents, losing 1541 days.

Some other records are practically as good or better: Wright Machine Co., 102 employees, one accident, 7 lost-time days; Baldwin Chain & Mfg. Co., 283 employees, three accidents, 30 days; Morgan Construction Co., 639 employees, 10 accidents, 158 days; Wright works, Wickwire-Spencer Steel Corporation, 337 employees, six accidents, 75 days; Morgan works, Wickwire-Spencer, 286 employees, six accidents, 90 days; Clinton works, Wickwire-Spencer, 450 employees, 10 accidents, 194 days; Goddard works, Wickwire-Spencer, 656 employees, 15 accidents, 275 days; Arcade Malleable Iron Co., 262 employees, five accidents, 113 days; Crompton & Knowles Loom Works, 2164 employees, 50 accidents, 669 days.

MERGER HEARING RESUMED

Hearing at Philadelphia in Complaint in Bethlehem-Midvale-Lackawanna Case

PHILADELPHIA, Feb. 2.—Efforts to prove that the Bethlehem-Midvale-Lackawanna steel merger violated Sec. 10 of the Clayton anti-trust act by "substantially lessening competition," and Sec. 5 of the Federal Trade Commission act relating to "unfair methods of competition" were resumed here in the Federal Building on Thursday of last week.

Present indications are that proceedings in Philadelphia will continue for three weeks or more. After that they will be transferred to other points and may be held in Pittsburgh next. Previously they have been conducted in Boston, Buffalo and New York in the order named. The prolonged hearings in New York were conducted the latter part of last June.

Presiding at the hearings is Examiner George McCorkle of the Federal Trade Commission. B. B. Bane is the principal attorney for the Commission and is being assisted by R. E. Barnes. Counsel for the respondents include F. H. Woods, a member of the New York law firm of Cravath, Henderson and DeGersdorf, and W. W. Robinson, also associated with that firm. Others assisting the respondents are R. W. Gillispie, assistant general manager of sales, and J. H. Kessack, statistician, of the Bethlehem Steel Corporation. Evidence being taken is like that presented at earlier hearings and consists of exhibits, including letters, contracts, invoices, etc., and testimony regarding them. Exhibits placed in the record up to the present time exceed 20,000 and have been introduced through Mr. Bane. They are intended to show that companies taken over by the Bethlehem Steel Corporation were important competitors of the latter and that their acquisition resulted in "substantially lessening competition." Attorneys for the respondents in their cross-examination of witnesses are combatting this claim. The interests acquired were the Lackawanna Steel Co., Buffalo, taken over in October, 1922, and the Midvale Steel & Ordnance Co., acquired in March, 1923, except the latter's plant at Nicetown, Pa., but including the Cambria Steel Co., Johnstown, Pa., and Worth Brothers Co., Coatesville, Pa.

Purchasing Agent Testifies

The first witness called at the hearing here was H. A. Rowbotham, purchasing agent for the Belmont Iron Works, a fabricating interest with plants at Philadelphia and Eddystone, Pa. His testimony revolved largely around contracts submitted as exhibits and made with the Bethlehem Steel Co., and the companies it acquired. Most of them were during the period from 1919 to 1922, but a portion of them covered the intervening years up to and including the first six months of 1924. Similar contracts were also introduced through other witnesses. Testimony of Mr. Rowbotham showed that the Belmont Iron Works had, except during the past two years, purchased comparatively small quantities of material from producers taken over by Bethlehem. The great bulk of requirements came from makers in the Philadelphia district, including the Bethlehem Steel Corporation. There were some fair-sized purchases made, however, from such manufacturers as the Jones & Laughlin Steel Corporation and the Carnegie Steel Co., Pittsburgh, with some of them coming from the Pencoyd, Pa., plant of the Carnegie company. A considerable portion of tonnage bought from the Pittsburgh district, Mr. Rowbotham said, was for stock. The only large purchase made from the Cambria Steel Co. during the period covered by the exhibits was in March, 1921, it was stated, and consisted of approximately 5000 tons of plates, bars and shapes, mostly the latter, the price being 1.73c., Johnstown. Mr. Rowbotham estimated annual requirements of the Belmont Iron Works at 1000 to 1500 tons of steel bars, 3000 to 5000 tons of plates and 25,000 to 30,000 tons of shapes. Large tonnages of steel bars especially have been bought since 1922, it was stated, from Jones & Laughlin and the Carnegie company.

Mr. Rowbotham estimated that prior to October, 1922, he bought from 50 to 60 per cent of his plate requirements from the Lukens Steel Co., Coatesville, and from 10 to 15 per cent from Jones & Laughlin, with perhaps 5 per cent from the Cambria Steel Co., except for the large purchase from the latter in 1921. Purchases of shapes from Bethlehem, including both Bethlehem and standard sections, ranged from 25 to 40 per cent of requirements in 1919 and 1920, while for the same period purchases from the Eastern Steel Co., Pottsville, Pa., and the Carnegie company ranged from 12½ to 15 per cent. He said that because of the fabrication-in-transit privilege the Belmont Iron Works had found it advantageous to buy from the Cambria Steel Co. at Johnstown and from Pittsburgh mills for fabricating work in the New York district.

Mr. Potts Tells of His Purchases

Harrison I. Potts, a member of the firm of Horace T. Potts & Co., iron and steel merchant with warehouse at Philadelphia, testified that his company purchases approximately 12,000 tons of steel each year, divided as follows: Steel bars, 50 per cent; shapes, 20 per cent; sheets, 20 per cent, and plates, 10 per cent. He named numerous sources of purchases, including plants in the East such as those in the Philadelphia district to those as far west as the Youngstown, Ohio, district. Among the list were the Bethlehem Corporation and the companies it acquired. Purchases depended somewhat upon the sizes and kinds of steel wanted, Mr. Potts said. He had bought good sized tonnages of soft steel bars from the Cambria company, he said, but turned to other sources for large round bars when Cambria dismantled its hand-mill making these bars. A large portion of alloy bars was bought from Bethlehem. He said his principal sources of supplies of shapes were Bethlehem, Jones & Laughlin, Carnegie, the Phoenix Iron Co., and the Eastern Steel Co. Plates also were bought from a number of sources, including those of the Philadelphia and Pittsburgh districts, and small tonnage had been bought from the Lackawanna Steel Co. Since the merger, it was stated, plates are bought principally from Jones & Laughlin, Worth Steel Co., Claymont, Del.; Carnegie, Alan Wood Iron & Steel Co., Philadelphia; Lukens Steel Co., and the Eastern Steel Co.

Sheet purchases are made from a large number of producers in the Philadelphia, Pittsburgh, Youngstown and Wheeling districts.

Replying to a question by Mr. Bane, it was stated by Mr. Potts that purchases made since the abolition of the Pittsburgh base were made on a delivered basis, but that prices generally worked back to the Pittsburgh base when the freight was taken into account.

Annual Meeting of Associated Employers of Indianapolis

INDIANAPOLIS, IND., Feb. 2.—The annual election of officers of the Associated Employers of Indianapolis will be held Feb. 11. The four principal officers of the association are named by the board of directors. Successors will be chosen for the following officers whose terms are now expiring: Fred C. Gardner, president; Walter B. Harding, first vice-president; Samuel O. Dungan, second vice-president, and J. Edward Stilz, treasurer. Eight directors who will serve three-year terms were recently elected by a referendum ballot.

The annual meeting of the association was held Friday night, Jan. 30. Eugene S. Elkus of San Francisco, president of the National Association of Credit Men, made the principal address. More than 200 employers were present. Dr. Gus W. Dyer, Nashville, Tenn., professor of economics and head of the social service department of Vanderbilt University, who was to have made the principal address failed to arrive in time for the meeting because of heavy snows in the East which delayed his train. Plans are now being made to have Dr. Dyer speak at a joint meeting of the Associated Employers and the National Metal Trades Association, in Indianapolis, at the time of the nineteenth annual meeting of the metal trades the latter part of February.

IRON ORE SHIPMENTS

Movement From Lake Superior Ranges Show Large Decrease From That of 1923

Lake Superior iron ore shipments in 1924 totaled 43,895,110 tons, according to the compilation just completed by the *Iron Trade Review*. The reduction from 60,780,003 tons in 1923 is 27.7 per cent. Shipments in 1924 were 7,150,968 tons less than the yearly average for the preceding 10 years. In comparison with the average for the last 20 years they reveal only the slight gain of 631,167 tons. Shipments 14 and 15 years ago approximated those of 1924.

The four leading companies in the Lake Superior

Shipments by Ports and All-Rail, Gross Tons					
	1924	1923	1922	1921	1920
Escanaba..	4,244,669	5,607,411	4,592,354	1,806,656	7,361,070
Marquette..	2,516,548	2,789,285	1,976,220	786,946	3,415,108
Ashland..	4,807,565	6,237,449	5,813,207	2,264,705	3,180,852
Two Harbors..	4,317,494	6,418,464	5,952,437	3,286,333	9,278,464
Superior..	13,355,214	17,820,476	11,234,240	4,991,278	14,812,398
Duluth..	12,882,082	20,163,619	13,044,771	9,164,803	15,479,334
Total					
by lake..	42,623,572	59,036,704	42,613,229	22,300,726	58,527,226
Total					
by rail..	1,271,538	1,743,299	1,376,867	497,623	1,884,346
Total	43,895,110	60,780,003	43,990,096	22,798,349	60,411,572

iron mining business shipped 73 per cent of all the ore forwarded in 1924. In 1915 the same companies reported 64 per cent of the total. The increase in the proportion their figures bear to the total is due to consolidations. Consolidations have broadened the operations of the largest independent companies. The United States Steel Corporation's proportion of the total has remained about 45 per cent.

The total amount of iron ore shipped from the Lake Superior district to date is 1,178,422,215 tons. One billion tons of this has been shipped in the last 25 years.

The concentration of iron ore is becoming more of

Iron Ore Shipments by Ranges, Gross Tons					
	1924	1923	1922	1921	1920
Mesabi..	29,141,665	41,814,463	28,055,394	16,350,696	37,149,277
Marquette..	3,174,660	3,892,666	2,817,390	1,116,468	4,608,323
Menominee..	3,836,707	4,854,781	4,078,519	1,584,404	6,562,106
Gogebic..	5,159,338	6,579,950	6,219,610	2,336,493	8,763,332
Vermillion..	978,097	1,278,598	1,211,467	869,313	1,007,435
Cuyuna..	1,468,940	2,220,745	1,497,615	488,562	2,191,528
Mayville-Baraboo..	135,203	138,800	110,101	52,413	129,571
Total	43,895,110	60,780,003	43,990,096	22,798,349	60,411,572

a factor in the Lake Superior industry. Reports to the Lake Superior Iron Ore Association indicated that in 1924 more than 5,000,000 tons of the ore that was shipped represented concentrates. The washed ore totaled 4,728,504 tons; ore concentrated by means of jigs, 40,037 tons; sintered, 51,703 tons, and dried, 409,026 tons, a total of 5,229,270 tons. In addition to this a larger amount represented ore that was crushed and screened before shipping.

Mines that shipped 1,000,000 tons or more in 1924 are: Hull-Rust, 4,653,568 tons; Canisteo, 1,150,117 tons; Hill Annex, 1,189,917 tons; Mahoning, 1,717,092 tons; Missabe Mountain, 3,182,801 tons; Morris, 1,316,561 tons; Spruce, 1,515,542 tons. All of the foregoing are open pit mines on the Mesabi range. Elsewhere only one iron ore property came up to 1,000,000 tons with shipments, the Norrie group, on the Gogebic range. This group, practically one series of workings, forwarded 1,120,916 tons.

The Hull-Rust mine of the Oliver Iron Mining Co., subsidiary of the United States Steel Corporation, forwarded more ore in 1924 than came from any one range in the Lake Superior district, excepting the Mesabi and the Gogebic. All of the Gogebic tonnage exceeded the Hull-Rust's total by only 506,270 tons. The Hull-Rust in 1923 shipped the huge total of 8,823,879 tons.

Shipments from the mines of the Oliver company last year were 19,802,032 tons, or 45.11 per cent of all. The Oliver company has shipped approximately 362,332,102 tons since 1908.

The Mesabi Iron Co., which has the largest plant in

the Lake Superior district for the concentration of ore, representing an investment of nearly \$5,000,000, was idle for the greater part of 1924, owing to the lack of demand. Its shipments in 1924 amounted to 43,689 tons. In 1923 it shipped 83,525 tons, and in the first year of the plant's commercial operation, 1922, the tonnage was 10,675.

A shipment of 43 tons was made by the Magpie mine on the Canadian side of the district, that being the only shipment from a Canadian mine in 1924.

The annual statement of the Lake Superior Iron Ore Association gives 43,896,361 as the total of shipments for the year. This is 1251 tons more than the *Iron Trade Review's* total, and is due to a slight difference in the method of compiling the statistics.

Steel Corporation Offers Employees Common Stock at \$125

The United States Steel Corporation announced on Jan. 23 an offering of common stock for 1925 to its officers and employees. The price is \$125 and the offering is 100,000 shares. A change was made in the terms of payment on employees' subscriptions, the minimum monthly installment being \$3 a share. Heretofore it has been \$2. Payment for this stock is to be completed within three years. The maximum numbers of shares for which employees may subscribe are indicated in the following:

Employees Receiving Annual Salaries of	May Subscribe for a Maximum Number of
\$1,250.00 or less	1 share
1,250.01 to \$2,083.33	2 shares
2,083.34 to 3,645.83	3 shares
3,645.84 to 4,687.50	4 shares
4,687.51 to 6,875.00	5 shares
6,875.01 to 8,125.00	6 shares
8,125.01 to 9,375.00	7 shares
9,375.01 to 13,281.25	8 shares
13,281.26 to 14,843.75	9 shares
14,843.76 to 16,406.25	10 shares
16,406.26 to 17,968.75	11 shares
17,968.76 to 19,531.25	12 shares
19,531.26 to 33,750.00	13 shares
33,750.01 to 36,250.00	14 shares

In addition to the dividends regularly paid on the stock, employees are credited on their subscriptions an average of \$5 per year for five years. Heretofore these credits have been uniformly \$5 a year. Last year for the first time the credit was graduated \$3 per share the first year, \$4 the second year, \$5 the third year, \$6 the fourth year and \$7 the fifth year. Whenever an employee completes payment for his stock, the above amounts are paid in cash in addition to the regular dividends. In 1924 applications from 61,292 employees were for 154,363 shares. The total stock allotted was 113,588 shares.

Production of Electrical Machinery in 1923

Electrical machinery, apparatus and supplies turned out in the United States in 1923 amounted to \$1,304,650,999. This was an increase of 59.4 per cent over the \$818,415,150 reported for 1921. Of the total \$184,510,000 was insulated wire and cable, \$127,212,066 motors and parts, \$124,630,467 batteries, \$90,857,998 telephone apparatus, \$71,967,458 incandescent lamps, \$67,002,084 household apparatus and appliances, and smaller amounts for a multitude of other machinery and apparatus. Generating apparatus and parts, not including automotive generators, accounted for \$45,064,319; automotive generators and starter motors provided \$48,037,871, while transformers, regulators and reactors amounted to \$56,142,506. Radio apparatus shows in the total at \$44,176,298, compared with only \$9,549,649 in 1921. There were 1671 establishments, with 234,892 wage earners receiving wages amounting to \$305,455,263. The horsepower used was 488,260, while coal consumption was 1,437,859 net tons.

The Guibert Steel Co., Pittsburgh, structural steel fabricator, has increased the number of directors from five to seven by the addition of two employees to the board. The new directors are Miss M. G. Stewart and Jerome Wolff. The new board organized as follows: F. W. Guibert, chairman; O. E. Guibert, president; George E. Brown, vice-president, and S. R. Bachtel, secretary and treasurer.

MACHINERY EXPORTS INCREASE

Gain of 10 Per Cent in 1924 Over 1923, Though December Was Below November and November Below October

WASHINGTON, Jan. 29.—While exports of machinery declined to a value of \$22,796,442 in December, 1924, as against \$25,502,430 in November, for the year 1924 they showed a sharp increase of 10 per cent to a value of \$317,034,987, compared with \$287,910,440 in 1923.

Imports of Machinery Into the United States
(By Value)

	December		Twelve Months Ended December	
	1924	1923	1924	1923
Metal-working machine tools.....	\$18,858	\$63,659	\$335,903	\$423,175
Agricultural machinery and implements.....	146,500	310,688	2,285,830	2,935,555
Electrical machinery and apparatus.....	73,221	42,241	1,191,138	511,233
Other power generating machinery.....		17,103	89,876	1,783,622
Other machinery.....	294,753	276,682	3,982,381	2,681,733
Vehicles except agricultural.....	109,986	182,577	1,826,443	2,735,593
	\$643,318	\$892,950	\$9,711,571	\$11,070,911

Important increases in machinery exports for last year over those of the previous year, however, were comparatively few in number, while important decreases were more numerous, but the heavy gains offset the declines. Among the increases were steam locomotives, excavating machinery, sharpening and grinding machines, flour mill, grist mill and sugar mill machinery, typewriters and agricultural machinery. In-

Machinery Exports from the United States
(By Value)

	December		Twelve Months Ended	
	December, 1924	December, 1923	December, 1924	December, 1923
Locomotives.....	\$580,638	\$425,669	\$5,649,456	\$4,421,936
Other Steam Engines.....	29,120	29,528	975,537	1,166,557
Boilers.....	42,137	141,188	1,864,454	1,432,930
Accessories and Parts.....	163,307	342,086	3,622,778	3,961,747
Automobile Engines.....	924,114	280,168	4,188,426	5,342,029
Other Internal Combustion Engines.....	347,970	474,563	7,032,586	6,831,929
Accessories and Parts for.....	192,128	234,600	3,471,783	3,402,991
Electric Locomotives.....	42,855	251,878	2,248,040	4,314,367
Other Electric Machinery and Apparatus.....	638,115	832,525	7,937,616	8,821,921
Excavating Machinery.....	30,974	151,103	2,233,206	1,634,522
Concrete Mixers.....	51,160	55,655	642,518	567,635
Road Making Machinery.....	65,678	60,429	1,189,476	921,492
Elevators and Elevator Machinery.....	86,960	296,494	1,884,604	2,724,784
Mining and Quarrying Machinery.....	861,204	2,901,220	10,080,212	10,137,068
Oil Well Machinery.....	349,825	496,764	6,399,165	6,626,079
Pumps.....	391,238	642,938	7,119,119	7,465,132
Lathes.....	95,727	82,535	1,197,752	1,094,060
Boring and Drilling Machines.....	85,227	56,771	615,695	722,402
Planers, Shapers and Slotters.....	30,758	3,962	319,272	236,838
Bending and Power Presses.....	157,552	25,970	618,998	385,896
Gear Cutters.....	14,879	33,336	391,301	237,696
Milling Machines.....	112,166	33,897	644,751	455,906
Thread Cutting and Screw Machines.....	64,173	62,725	590,200	524,443
Punching and Shearing Machines.....	4,111	9,061	100,285	177,690
Power Hammers.....	13,443	10,645	241,904	155,279
Rolling Machines.....		12,000	100,875	40,195
Sharpening and Grinding Machines.....	195,109	37,807	1,814,681	1,008,786
Other Metal Working Machinery and Parts of.....	306,013	313,792	4,146,414	4,641,400
Textile Machinery.....	789,961	591,233	8,752,282	9,043,677
Sewing Machines.....	654,094	1,008,153	8,406,222	9,211,038
Shoe Machinery.....	137,236	92,263	1,473,049	1,324,256
Flour-Mill and Gristmill Machinery.....	84,270	88,293	811,935	1,155,485
Sugar-mill Machinery.....	264,146	482,093	8,304,990	6,022,794
Paper and Pulp Mill Machinery.....	177,046	111,091	2,130,685	2,006,812
Sawmill Machinery.....	55,412	39,416	628,559	617,118
Other Woodworking Machinery.....	138,430	116,714	1,336,506	1,137,215
Refrigerating and Ice Making Machinery.....	179,421	173,490	2,180,425	2,264,867
Air Compressors.....	258,770	292,188	2,958,936	2,627,546
Typewriters.....	1,262,292	1,294,667	15,110,536	13,821,480
Power Laundry Machinery.....	47,847	84,444	975,121	1,006,865
Typeetting Machines.....	243,715	420,590	3,530,108	3,889,739
Printing Presses.....	595,938	407,343	4,825,425	4,603,321
Agricultural Machinery and Implements.....	3,544,203	2,464,272	59,974,044	31,485,665
All Other Machinery and Parts.....	8,489,083	7,627,900	118,315,910	118,238,882
Total.....	\$22,796,442	\$23,409,050	\$317,034,987	\$287,910,440

crease in the latter was especially marked, rising to \$59,974,044 against \$31,485,665 in 1923. Among important declines in the value of exports in 1924 under 1923, were electric locomotives, "other electrical machinery," elevators and elevator machinery, sewing machines, and flour mill and grist mill machinery.

Imports of machinery in December totaled \$643,318 against \$1,354,600 in November. For the year 1924, imports declined to \$9,711,571 against \$11,070,911 in 1923. Decreases in 1924 affected all lines except electrical machinery and "other machinery." The item of "other power generating machinery" almost disappeared, dropping 95 per cent, from \$1,783,622 to \$89,876, with no exports in December and only \$5,246 in November.

United States Metal-Working Machinery Exports

	December, 1924		November, 1924	
	Number	Value	Number	Value
Lathes.....	71	\$95,727	111	\$140,620
Boring and drilling machines.....	117	83,227	102	31,218
Planers, shapers and slotters.....	15	30,758	22	34,381
Bending and power presses.....	20	157,552	46	44,672
Gear cutters.....	18	14,879	53	74,728
Milling machines.....	51	112,166	36	57,937
Thread-cutting and screw machines.....	68	64,173	60	52,707
Punching and shearing machines.....	10	4,111	14	20,069
Power hammers.....	24	13,443	17	27,813
*Sharpening and grinding machines.....	139	195,109	92	124,123
Chucks, center, lathe, drill and other metal-working tools.....	1,406	20,573	2,010	32,455
Pneumatic portable tools.....	1,026	75,898	1,228	74,667
Totals.....	2,965	\$867,616	3,791	\$715,327

*External and internal grinding machines only; "other sharpening and grinding machines" are reported now by weight instead of by number.

Exports of metal working machinery in December totaled 2965 in number, valued at \$867,616, compared with 3791, valued at \$715,327, in November.

LESS ORE IMPORTED IN 1924

Chile Supplied More Than Half—Iron and Steel Export Values Fell 6 Per Cent Below 1923

WASHINGTON, Jan. 29.—Of imports of iron ore amounting to 2,047,055 tons in 1924, the greatest source of origin was Chile, incoming shipments from that country amounting to 1,144,775 tons, or 56 per cent of the total. Of pig iron imports in December, 1924, amounting to 28,143 tons, British India provided 14,335 tons; England, 9083 tons; the Netherlands, 2411 tons; Germany, 1500 tons, and Canada, 814 tons.

Sources of manganese ore in December, amounting to 18,522 tons, were as follows: European Russia, 6873 tons; Netherlands, 3400 tons; Brazil, 3129 tons; Cuba, 2650 tons; British India, 1888 tons; England, 279 tons; Hong Kong, 278 tons, and Canada, 25 tons.

Total exports of iron and steel in December were valued at \$15,889,223, and for the year 1924 they were valued at \$221,056,725. In December, 1923, they were valued at \$21,705,073, while for the year 1923, the total was \$234,354,997. Imports of iron and steel in December, 1924, were valued at \$2,399,758, and for the year 1924 they were valued at \$28,966,525. In December, 1923, they were valued at \$2,064,203, and for the year 1923, at \$31,035,418.

Sources of American Imports of Iron Ore

	(In Gross Tons)		Twelve Months Ended December	
	December, 1924	December, 1923	1924	1923
Spain.....	7,631		70,645	214,891
Sweden.....	39,674	24,336	310,436	749,765
Canada.....	258	7	4,122	24,710
Cuba.....	15,207	22,300	285,288	692,979
Chile.....	101,500	79,100	1,144,775	634,600
French Africa.....	19,107	13,239	192,814	345,367
Other countries.....	2,194	8,208	38,975	106,118
Total.....	185,571	157,190	2,047,055	2,768,430

DISTRIBUTION OF STEEL EXPORTS

Japan Took More Than Two-Thirds of Steel Sheets Shipped in 1924—Canada Absorbed Most of the Plates

WASHINGTON, Jan. 29.—An outstanding feature of the distribution of steel exports in 1924 was the movement to Japan of 101,606 gross tons of black steel sheets out of total shipments of 148,742 tons. Canada was the only other large purchaser of sheets, taking 37,142 tons, leaving only 10,000 tons in round numbers for all other countries.

Canada, the leading foreign market for American steel products in 1924, took 67,305 tons of steel plates, or nearly 80 per cent of the total exports of 85,543 tons. No other country reached 1500 tons in this item.

Canada again was the largest purchaser of galvanized steel sheets, with 17,300 tons in the year, but was followed closely by Japan, 15,340 tons; Argentina, 14,460 tons, largely for locust defence; Philippines, 13,568 tons and Cuba, 11,296 tons. Thus, five different countries took in each case more than 10 per cent of the total shipments of 108,148 tons.

Tin Plate:	December		Twelve Months Ended December	
	1924	1923	1924	1923
Canada	976	1,741	22,513	29,562
Japan	7,263	8,216	53,984	35,808
Cuba	902	445	5,887	4,954
Mexico	387	174	3,918	2,341
Argentina	379	827	8,888	7,291
Chile	272	268	3,278	2,458
Uruguay .....	...	173	409	3,497
China	997	3,048	24,680	12,877
British India	578	...	10,010	6,465
Hong Kong .....	...	1,108	6,347	3,353
Italy	101	...	4,114	2,267

Japan, in addition to being the principal foreign market for black steel sheets, also took the lead in tin plate, with 53,984 tons, or more than the next two countries combined. China took 24,680 tons and Canada 22,513 tons.

Taking 47,802 tons, Cuba was the largest purchaser of steel rails in 1924, the shipments to that country having been about 23 per cent of the entire 208,829 tons shipped. Japan ranked second, with 33,943 tons (besides 10,985 tons for Kwantung) and Canada third, with 18,355 tons.

Brazil, with 29,694 tons of barbed wire, took about one-third of the total exports of 90,443 tons. Argentina came second with 10,267 tons and Cuba and Colombia third and fourth at about 7500 tons each.

Plain and galvanized wire as usual was pretty well distributed. Canada, Brazil, Japan, Mexico, Argentina and Australia, in that order, all took tonnages ranging from 2800 to 8300 during the year. Total shipments of plain wire were reported at 37,052 tons, compared with 92,231 tons in 1923.

Source of Much of Argentina's Steel Imports

Belgium still holds the Argentine market for structural iron and steel so far as price is concerned, according to the London *Ironmonger*. In corrugated galvanized iron sheets the British manufacturers maintain their supremacy and, during the period of January to September, 1924, supplied over 95 per cent of the total requirements. The United States Steel Corporation, however, monopolizes the business in galvanized flat sheets.

Trade in tin plate was heavier during 1923 than during 1922 and the best of the meat packing firms prefer to run no risks and continue to buy Welsh tin plates, although large orders are placed in the United States when the difference in price is greater than the slight margin which the majority of buyers are prepared to allow in favor of Welsh tin plates.

Barbed wire for fencing is supplied chiefly by Germany, the United States and Belgium, all of which countries undercut the British manufacturers. Oval wire comes principally from Germany; it is less heavily galvanized than the British quality but the wire itself is flexible and good. In varnished wire, and nail and soft iron wire, the German manufacturers have the market in their hands, and on wire netting they have been able to offer more favorable discounts off British price lists, f.o.b. Continental port.

Tubes and fittings for gas, water and steam are sold on the basis of the British standard list price, f.o.b., and the Continental, Canadian and American firms quote off this list. It has been very difficult for British firms to offer as good discounts as German and Canadian manufacturers, which have captured the largest trade. Large orders for cast iron water pipe and connections have been placed in Germany and France.

The fifth annual machine tool exhibition held jointly by the New Haven section of the American Society of Mechanical Engineers, the department of mechanical engineering of Yale University and the New Haven Chamber of Commerce will be held Sept. 8 to 11, inclusive. One plan is to emphasize the international aspects of the machine tool industry.

Exports from United States by Countries of Destination
(In Gross Tons)

	Steel Plates				Galvanized Steel Sheets				Black Steel Sheets			
	December		Twelve Months Ended December		December		Twelve Months Ended December		December		Twelve Months Ended December	
	1924	1923	1924	1923	1924	1923	1924	1923	1924	1923	1924	1923
Canada	4,619	4,324	67,305	92,381	844	805	17,300	29,785	2,072	1,880	37,142	49,136
Japan	91	174	702	1,159	2,793	3,523	15,340	8,917	5,124	33,347	101,606	74,749
Cuba	6	71	1,316	932	336	372	11,296	12,998	17	74	849	1,926
Philippine Islands..	...	...	1,425	570	544	584	13,568	7,825	25	93	25	275
Mexico	47	3	718	714	588	235	6,025	6,333	...	...	...	...
Argentina .....	...	...	...	...	151	122	14,460	5,062	49	...	...	1,976
Chile .....	...	...	...	...	9	67	1,246	2,857	...	...	...	...
Colombia .....	...	...	...	...	544	191	4,325	4,534	...	...	...	...
Central America...	...	...	...	...	320	249	4,503	4,112	...	...	...	...

	Steel Rails				Barbed Wire				Plain and Galvanized Wire			
	December		Twelve Months Ended December		December		Twelve Months Ended December		December		Twelve Months Ended December	
	1924	1923	1924	1923	1924	1923	1924	1923	1924	1923	1924	1923
Canada	1,043	3,203	18,355	61,445	995	1,513	4,329	6,303	438	1,645	8,301	...
Japan	1,473	12,097	33,943	91,718	...	...	...	...	33	2,171	4,052	22,825
Cuba	2,679	2,527	47,802	45,554	258	503	7,620	9,353	99	126	1,721	2,572
Philippine Islands..	132	318	5,895	6,105	...	...	...	...	...	...	...	...
Mexico	347	116	9,177	3,323	427	278	3,988	4,003	258	291	2,886	3,977
Argentina .....	...	...	...	1,272	485	234	10,267	8,243	3	412	3,544	12,776
Chile .....	...	...	9,102	5,320	...	...	29	...	...	...	27	4,205
Colombia	161	54	9,231	3,249	788	422	7,287	4,409	...	...	...	...
Brazil .....	...	793	9,999	4,849	1,765	1,212	29,694	11,703	135	749	7,526	9,785
Chosen .....	...	...	36	3,292	...	...	...	...	...	...	...	...
Honduras	213	76	3,180	8,871	...	...	...	...	...	...	...	...
Kwan Tung .....	...	...	10,985	11,143	...	...	...	...	...	...	...	...
Australia .....	...	...	...	...	124	137	3,053	2,491	251	361	2,804	6,991
British S. Africa..	...	...	...	...	456	255	4,999	5,599	...	...	...	...

STEEL AND INDUSTRIAL STOCKS

The range of prices on active steel and industrial stocks from Monday of last week to Monday of this week was as follows:

	Low	High		Low	High
Allis-Chalmers .. 75	75		Int. Harvester...106½	108½	
Allis-Chal. pf...106	107		Int. Harvester pf.114½	114½	
Am. B. S. & Fdry 96½	98		Jones & Laugh'n pf.112	112½	
American Can...163	169½		Lima Loco..... 68½	70	
American Can pf.115	116		Nat.-Acme	83½	7
Am. Car & Fdry.198½	201		Nat. En. & Stm... 34½	35½	
Am. C. & F. pf...123½	123½		Nat. En. & S. pf. 85½	88	
Am. Locomotive...113	117½		N. Y. Air Brake. 50	52½	
Am. Loco. pf...120½	120½		Otis Steel	10	11½
Am. Radiator...100	101½		Otis Steel pf.... 60½	66½	
Am. Steel Fdries. 46	47½		Pressed St. Car... 63	66½	
Am. Steel Fdr. pf.109½	110		Pressed Steel pf. 88½	90	
Baldwin Loco...129½	133½		Replogle Steel... 19½	20½	
Baldwin Loco. pf.116½	116½		Republic	57½	59½
Bethlehem Steel... 50½	52		Republic pf..... 93	93½	
Beth. Stl. 7% pf. 97½	102		Sloss-Sheffield .. 85	86½	
Beth. Stl. 8% pf.113	116½		Sloss-Sheffield pf. 96½	96½	
Br. Em. Steel... 3½	3½		Superior Steel... 37	37	
Br. Em. Stl. 1 pf. 32	33½		Transue-Wms. .. 31½	32½	
Br. Em. Stl. 2 pf. 10½	11½		Un. Alloy Steel... 30½	32	
Colorado Fuel... 42½	46½		U. S. Pipe.....175½	183	
Crucible Steel...73½	76½		U. S. Pipe pf....109	110½	
Crucible Stl. pf. 91½	95½		U. S. Steel.....125½	128½	
Deere pf..... 87½	87½		U. S. Steel pf....124	126½	
Gen. Electric...303½	310½		Vanadium Steel... 27½	29½	
Gt. No. Ore Cert. 38½	40½		Va. I. C. & Coke. 40½	40½	
Gulf States Steel. 85½	89½		Whouse Air Br...105	107	
Inland Steel..... 46	49½		Youngst'n S. & T. 71½	73	

Jones & Laughlin Earnings

The annual report of the Jones & Laughlin Steel Corporation and subsidiary companies for the year ended Dec. 31, last, follows:

	1924	1923
Income after deprec., deple., taxes,		
Interest	\$8,626,229	\$10,913,878
Adjustments and appropriations		
for pension fund.....	431,845	610,350
Net income.....	\$8,194,384	\$10,303,528

Industrial Finance

S. A. Ault, receiver for the Lorain Steel Foundry Co., Lorain, Ohio, has filed his final report on the receivership with the Common Pleas Court of Lorain County. The report states that settlements were made with all creditors for 30½c. on the dollar. The foundry was erected here about 16 years ago. During the war it was known as the Aetna Steel Foundry Co. and manufactured munitions. The Lorain Steel Foundry Co. purchased the plant in 1921. It was shut down in 1922, according to Mr. Ault.

A special meeting of the American Car & Foundry Co. stockholders has been called for March 5 to vote on a proposal of the directors to change the capital structure of the company from 300,000 shares, par value \$100, to 600,000 shares without par value.

Net profits of the Superior Steel Co. in 1924 amounted to but \$9,659, owing to a falling off of more than \$3,000,000 in the gross sales for the year. The net profit was equivalent to 9c. a share on the 100,000 shares of \$100 par stock. In 1923 there was net profit of \$734,879, or \$6.22 a share on the 60,000 common shares, after allowing for preferred stock dividends. On Feb. 15, 1924, the preferred capitalization was called for redemption. Gross sales last year aggregated \$5,626,752, against \$8,749,442 in 1923. After making all charges last year the company had a deficit of \$290,341, whereas for 1923 there was a surplus of \$373,475.

Total sales of the General Fireproofing Co., fabricating interest, Youngstown, manufacturing steel building products, metal furniture and other fabricated materials, were \$8,500,000 in 1924, about \$250,000 more than the year previous, while unfilled orders at the end of the year were \$200,000 more than at the same time 12 months before. Net earnings from 1924 operations, after all charges, totaled \$558,855, equivalent after preferred dividends to \$5.60 a share on common stock. During the year the company paid \$1.60 per share on common, leaving \$4 a share for surplus. Current assets of \$3,236,557 were shown, against current liabilities of \$1,095,000. About three years ago the company had bank loans of \$1,700,000, since reduced to \$716,000. Directors were reelected at a meeting held last week.

Directors of the Pressed Steel Car Co. resumed the payment of dividends on preferred stock by declaring three quarterly dividends of \$1.75 each. Payments were discontinued last June.

Net earnings of the New York Air Brake Co. for 1924, after interest, taxes and other charges, were \$1,556,314, equivalent to \$5.22 a share earned on the combined capital, constituting 300,000 shares. These earnings compare with \$2,526,487 in 1923. Current assets at the close of the year

were \$9,050,431 and current liabilities \$496,192, showing an increase in working capital of more than \$1,000,000.

The Gulf States Steel Co. reports income for the fourth quarter of \$260,039 after all charges. This is equivalent to \$2 a share on the 112,130 common shares outstanding, and compares with \$176,275 in the December quarter of 1923. Total net income for 1924 was \$979,315 or \$7.39 a share on common stock, as compared with \$1,576,521 or \$12.78 a share in 1923.

The Savage Arms Corporation reports net income for 1924 of \$693,799, after all charges. After deducting for preferred dividends this amounts to \$8.33 a share on 77,480 shares of common stock outstanding and compares with net income of \$404,044 in 1923.

The newly elected board of directors of the International Oxygen Co., Newark, N. J., declared a six per cent dividend on the outstanding stock at the annual stockholders' meeting, Jan. 20. Officers were re-elected with the addition of John Heller, who becomes secretary.

Incorporation of Railroad Equipment Company

The United Railway Equipment Co., 623 National Bank of Commerce Building, St. Louis, incorporated with capital of \$300,000, is successor to the Union Railway Equipment Co. Patents have been bought on a steel grain car which the company will manufacture or have manufactured to put in use on a leading railroad for demonstration. It will also manufacture a rail joint spring locking device, which was recently installed on ten railroads in the United States, and is now being tested on Canadian railroads. The company also holds patents on a reversible rail joint and an efficiency rail joint, which were put in use on three or four railroads about six months ago. In addition to these activities, the company will deal in other railroad equipment and parts, acting as manufacturers' agents. J. A. Hyle is general manager.

Proposed Sale of Wagner Corporation

Stockholders of the Wagner Electric Corporation, St. Louis, have been notified of a proposal for the sale of the company through the sale of outstanding securities to Brown, Boveri & Co. of Switzerland, manufacturers of electrical apparatus. W. A. Layman, president of the Wagner concern, sent the letter, which did not go into details, but said: "These proposals are being carefully investigated with a view to determining whether any advantage would accrue to our stockholders under the terms proposed. In the meantime your directors have made no commitments."

Outstanding stocks of the Wagner Electric Corporation, issued under its reorganization in 1922, comprise \$2,400,000 in 7 per cent bonds maturing over the next 15 years, \$1,500,000 in preferred stock and 80,000 shares of no par value common stock. The preferred stock has been paying 10 per cent dividends regularly.

Morse-Rogers Steel Co. Adds Products

The Morse-Rogers Steel Co., Cleveland, is now devoting its energies in Cleveland and New York to sheet steel primes, and is handling them under the trade name of Ace brand with its copper line and selected sheet steel seconds as secondary lines. In the Cleveland territory it has added a full line of tin plate, terne plate, elbows, conductor pipe and tinnings' supplies. Until a year ago, the company sold sheet steel seconds only and then added copper sheets and other copper products. The officers of the company are: E. D. Rogers, president, H. V. Morse, vice-president and J. D. Rogers, secretary and treasurer. J. D. W. Snowden is general manager of the copper department.

The Youngstown Pressed Steel Co., Warren, Ohio, is filling a number of orders for fireproofing building products for the Berger Mfg. Co., Canton, Ohio, whose plant was recently damaged by fire. Replacement of considerable stock which was ready for shipment at the time of the fire has become necessary. Officials of the Youngstown Pressed Steel Co. state that business is expanding and indications point to steady demand.

Approximate value of the products manufactured in 1924 by the Ohio Corrugating Co., Warren, Ohio, was \$1,600,000. stockholders were informed at the recent annual meeting. The company manufactures steel drums, ranging in size from 15 gal. to 110 gal. capacity, and averaging 55 gal. The containers produced by the company are manufactured of black sheet steel, are cylindrical in form, and are used as receptacles for lubricating greases, turpentine, linseed oil, paints, varnishes and like commodities.

Plans of New Companies

L. E. Zurbach has incorporated the L. E. Zurbach Steel Co., 145 Oliver Street, Boston, of which he is president. The company is direct mill representative for the Wallingford Steel Co., Wallingford, Conn., maker of cold rolled strip steel; the Canonsburg Steel & Iron Works, Canonsburg, Pa., maker of sheets in various finishes, and the company also has connections on high carbon and alloy sheets, bars and special shapes.

The Good Roads Equipment Co., City Center Building, 121 North Broad Street, Philadelphia, has been organized to manufacture as indicated. Plans are still in the formative stage and announcement will be made later.

The E. A. Eddy Machine Co., Eddy and Clifford Streets, Providence, R. I., has been organized to take over the business formerly conducted by the late E. A. Eddy, as dealer in new and second-hand machinery. Officers of the company are: L. M. Lincoln president and general manager, and Rosanna Eddy, secretary-treasurer.

The United Hardware & Tool Corporation has been organized as successor to the United Hardware & Tool Manufacturers of America, 30 Church Street, New York, and will continue to represent manufacturers for export. El. R. Wilner is manager.

Howard & Morse, Inc., 1197-1211 DeKalb Avenue, Brooklyn, has been incorporated to succeed the company by that name, manufacturing wire cloth, screens, laboratory instruments and operating a factory for wire-work and iron-work. It also manufactures fans, high-pressure blowers, motors and shafting, and acts as engineer and contractor for building installations and millwright service. Fred A. Purdy is president and general manager.

The Advance Products Co., 150 Broadway, New York, has been incorporated with \$500,000 capital stock, having taken over the business of the United Products Co., and will manufacture radio products. Operations at first will be conducted on a small scale, but later it is planned to equip a good sized plant and to manufacture on a quantity basis. Carlton C. Johnson is vice-president.

The Marine Transit Corporation, New York, has been incorporated with \$150,000 capital stock to operate a waterway transportation line in conjunction with the Kingston Drydock & Construction Co., Kingston, N. Y. The latter company will have charge of repairs and equipment for the new organization. The Kingston company, which does a lighterage business, is now building rum chasers in its yard. The same individuals are interested in both companies.

The Pascal Rail Joint Co., 42 Broadway, Room 2133, New York, has been organized to manufacture a new design of rail joint. It is understood that the company has a plant in Canada and that its product is standard equipment on the Canadian Pacific Railroad. It is not yet established that the company will operate a plant in the United States. Definite announcement of plans will be made in a later issue.

The Davis Incinerator Co., 15 West Fortieth Street, New York, incorporated with \$100,000 capital stock to manufacture incinerators and parts, takes over the business of a company established in this line some time ago. The incorporators are W. J. and R. C. Springborn.

The Hudson Refrigerating Machine Co., 180 Clerk Street, Jersey City, N. J., has been organized to deal in refrigerating equipment. It will purchase from various manufacturers for distribution to the trade, machinery, motors, pipe, fittings, etc. Henry R. Eckert is one of the principals.

The Morkrum-Kleinschmidt Corporation has been organized to take over the business of the Morkrum Co. of Chicago and the Kleinschmidt Electric Co. of New York. The company manufactures printing telegraph equipment. Its financial structure has been completed with an issue of \$1,500,000 in seven per cent preferred stock and 10,000 shares of no par common stock. Present plants operated at 1410 Wrightwood Avenue, Chicago, and Long Island City, N. Y., will be continued until additions can be made at Chicago permitting concentration of operations there.

The Johnson-Fox Co., P. O. Box 183, Waterville, Me., has been organized with \$50,000 capital stock and plans to manufacture chemical auto-motor accessories. It now has a laboratory at 60 Main Street, Waterville, and intends to erect a factory in Maine and one in Ohio early next spring. C. L. Fox is president.

The Progress Electrical Supply Corporation, 956 Broadway, Brooklyn, incorporated with \$50,000 capital stock to manufacture and deal in electrical equipment, will confine activities for the present to distribution. M. Roseblum and M. Bergman are the incorporators.

Farrell & Murphy, Inc., 503 West Fifty-sixth Street, New York, has been organized to engage in the distribution of motors, parts, etc. J. C. Farrell and J. F. Murphy head the company.

The Michigan City Reliable Machine Shop, Inc., Michigan City, Ind., has been organized to succeed to the business of a partnership which has been operated for four years as the Reliable Machine Shop. Operations will consist of general shop jobbing, machine and boiler work, together with acetylene welding and bridge, pier, dock work, structural iron work, etc. S. T. Nicholson heads the company.

The Holdfast Brake Co., Chavies, Ala., recently organized, has built and equipped a shop and plans to begin in a small way in manufacturing a new brake, which it expects to have ready for the market March 1. E. F. Dobbins heads the company.

The Shallor-Wheeler Engineering Co., New Haven, Conn., recently was organized to manufacture automotive equipment for automobile manufacturers. The company will bring out a line of body hardware, headlights and instruments and is now in production on a gasoline gage. G. E. Wheeler, president, Wheeler Radiator & Mfg. Co., East Cleveland, Ohio, and for the past 15 years general works manager for the English & Mersick Co., New Haven, is president, and F. E. Shallor of Detroit is secretary.

The Akron Aluminum Spinning Co., 900 Second National Building, Akron, Ohio, has been organized with \$4,500 capital stock to spin aluminum and other metals. The company has acquired a plot of ground and a building is now being erected to replace an old one from which equipment will be transferred. Frank Stollitzka, connected with the metal spinning trade for 32 years, is president and J. L. Edwards, secretary-treasurer.

The Trampe Spark Plug Co., Inc., Planters Building, St. Louis, has been organized with capital of \$250,000, fully paid in, and in about 30 days will be in operation turning out spark plugs. It has complete plant and equipment.

The Geometric Appliance Corporation, 27 Sixth Avenue, Brooklyn, has been incorporated to manufacture surgical instruments, metal specialties and to heat treat metals by a process developed by Thomas H. Rose, president of the corporation. Operations are now under way on a small scale and some work will be let out on contract, such as stamping and die operations. George E. Nace, who was connected with the American Machine & Foundry Co., for 34 years in various capacities, part of that time as secretary, treasurer and vice-president of a subsidiary, is secretary-treasurer, and George Macaulay, vice-president.

The Globe Mfg. Co., Battle Creek, Mich., incorporated with \$100,000 capital stock, has established itself in a plant of its own and will manufacture air compressors and tire pumps. H. M. Dunlap is manager.

The George J. Halligan Co. has been reorganized as a corporation and will conduct a general jobbing and fabricating business in iron and steel pipe, fittings, valves, industrial and power plant equipment and steam fitters' tools and supplies, with new offices, warehouse and pipe shop at 4638-46 West Roosevelt Road, Chicago. Officers are George J. Halligan, president and treasurer, and H. E. Shoff, secretary.

The Cantilever Wrench Corporation, with offices and factory at 354 Mulberry Street, Newark, N. J., has taken over the assets and liabilities of the Cantilever Wrench Co., manufacturer of the Cantilever reversible and ratchet chain pipe wrench. Officers of the new company are W. E. Cooke, president and treasurer; A. B. Cozens, vice-president and general manager; F. J. Carnelli, secretary. Activities will follow the same lines.

The Flamite Corporation, West Chester, Pa., has been incorporated with \$100,000 preferred stock and 10,000 shares of common stock, no par value, to manufacture a gas-forming dust to be known as "Flamite," a new fire extinguishing chemical. This product has been on the market for a year, having been manufactured by the National Fire Extinguishing Co., whose business, including the plant located at Green Hill, has been taken over by the Flamite corporation. All manufacturing will be done in the company's plant. It will be in the market from time to time for materials and equipment. C. M. Burdette is president and general manager and E. H. Jacob, treasurer.

The Jones Concrete Products Co., with plant and office at Lincoln Highway and Baltimore & Ohio Railroad, Elsmere, Del., has engaged in operations as indicated. Material and equipment will be required on occasion. H. P. Jones is president.

The Lakeview Drop Forge Co., Erie, Pa., is being organized and incorporated by E. W. Nick, G. C. Miller, and associates, and will establish a plant for the manufacture of drop forged products.

Machinery Markets and News of the Works

SMALL LOT BUYING

Fair Business Being Done, but Closing of Active Inquiries Slow

Railroad and Automotive Buying Light—Large List from Louisville & Nashville Expected

ORDERS are being received at a fair rate, but no large purchases are reported. Closing on active inquiries, which are still moderately numerous, is slow. New inquiries are largely for one or two tools. Most of the orders received are from industrial companies, railroad and automotive buying not having developed to any extent.

A large list is expected from the Illinois Central Railroad, which is erecting an addition to its Burnside

shops in Chicago, and will build also a large shop at Paducah, Ky. The construction of a car repair shop at its Markham yards, Chicago, is contemplated.

Lists which may be closed this week include that of the Louisville & Nashville Railroad and of the American Rolling Mill Co.

The appearance of foreign competition in the Chicago market is notable, several machines of German manufacture having been taken.

Outstanding among the orders for machines for export is one from France for ten brass working turret lathes.

Price advances have been noted, an Ohio manufacturer of milling machines quoting advances, effective Feb. 1, of 5 to 10 per cent on most sizes. A maker of low-priced engine lathes has advanced two models, \$100 to \$150.

New York

NEW YORK, Feb. 3.

THE volume of inquiry for single tools is beginning to increase, but thus far purchasing has been light. Among the railroads, the New York Central has been the most active in this district and single tool inquiries from this railroad continue to accumulate. It is asking for a screw machine for installation at the Cleveland shops and has inquiries pending for other points. The lists of the Central Railroad of New Jersey and the Lehigh Valley are still inactive. The inquiry of the Delaware & Hudson Railroad for two small tools, including a grinder, may develop into business before long. The Rock Island has closed with an Eastern builder on a 100-in. boring mill.

The Worthington Pump & Machinery Corporation still has one or two tools pending. The Andes Copper Mining Co. recently closed on a single tool, exclusive of the list of about 26 items now pending. A slight increase in business with manufacturers of radio parts and complete units is reported by makers of certain type of tools, such as automatic screw machines, multiple spindle drills, and small punching presses.

The American Sugar Refining Co., 117 Wall Street, New York, is completing plans for extensions and improvements in its refinery on South Second Street, Brooklyn, to cost in excess of \$5,000,000.

The Department of Plant and Structures, Municipal Building, New York, has plans for a two-story power house on 167th Street, near Walton Avenue, to cost approximately \$400,000 with equipment. Charles B. Meyers, 31 Union Square, is architect.

The Tulip Cup Corporation, Brooklyn, recently organized to take over and expand the plant and business of the Paper Utilities Corporation, 34 Thirty-fourth Street, Brooklyn, manufacturer of paper cups, etc., has arranged for a stock issue of \$450,000, a portion of the proceeds to be used for extensions.

The International Nickel Co., 67 Wall Street, New York, has acquired the plant and property of the British-American Co., manufacturer of similar products, with plant in Canada, which was placed in receivership about 6 months ago, and is said to be arranging to use the works as a branch plant.

The Central Hudson Gas & Electric Co., Poughkeepsie, N. Y., is completing negotiations for the purchase of the plant and properties of the Electric Light Co., New Paltz, N. Y., and plans extensions with additional equipment.

The American Chamber of Commerce in France, 32 Rue Taitbout, Paris, France, has received an inquiry (J-2972), from a French company interested in the purchase of American baling presses for handling waste paper, etc.

The Brooklyn Edison Co., Pearl and Willoughby Streets, Brooklyn, has plans for a two-story addition to its electric

generating plant on Hudson Avenue, to develop a total output of 500,000 kw., estimated to cost \$3,500,000 with machinery.

The Arkell Safety Bag Co., 118 Broadway, New York, manufacturer of paper linings for drums, barrels, etc., has awarded a general contract to the Clark Construction Co., 168 Grand Street, Waterbury, Conn., for a one-story addition to its plant at 67 North Eleventh Street, Brooklyn, 60 x 120 ft. Buck & Sheldon, 60 Prospect Street, Hartford, Conn., are architects.

Joseph Stolz & Son, Inc., Commerce Avenue and 170th Street, New York, structural steel and iron products, etc., has inquiries out for a crane for handling structural iron in the yard.

The Motor Improvement Co., 257 West Fifty-seventh Street, New York, is planning to purchase a metal stamping press, power-operated and one electric welder.

Missac Thompson, 189 Montague Street, Brooklyn, architect, has plans completed for a six-story automobile service, repair and garage building, 50 x 100 ft., to cost \$125,000 with equipment.

The New York Edison Co., Irving Place and Fifteenth Street, New York, is said to be arranging a bond issue of \$24,000,000, a portion of the proceeds to be used for the construction of its proposed electric generating plant at East River and East Fourteenth Street, estimated to cost \$30,000,000 with machinery.

The Fruit Growers' Co-Operative Exchange, the South African Department of Agriculture, and the Railway and Harbors Administration, Cape Town, S. A., are contemplating the joint construction of an ice and precooling plant on a local site. It will have an initial capacity for handling about 3000 tons of material at one time. D. C. Poole, consul-general, Department of Foreign and Domestic Commerce, Cape Town, has information regarding the project.

The West Side Supply Co., 402 West Thirty-ninth Street, New York, has inquiries out for watertube boilers.

The Knickerbocker Ice Co., 41 East Forty-second Street, New York, has filed plans for a two-story service, repair and garage building, 120 x 200 ft., for company trucks and cars, estimated to cost \$90,000 with equipment.

The Progressive Die Cutting Co., Inc., 204 Greene Street, New York, has leased space in the building at 135 West Seventeenth Street for extensions.

The Inspiration Consolidated Copper Co., 25 Broadway, New York, is planning for the construction of a new plant in Montana for mining and refining, to cost \$150,000 with equipment.

H. I. Feldman, 516 Fifth Avenue, New York, architect, has plans for a two-story automobile service, repair and garage building, 100 x 148 ft., at 412-22 East Ninetieth Street, to cost about \$100,000 with equipment.

The Delaware, Lackawanna & Western Railroad Co., 90 West Street, New York, is said to be completing plans for the electrification of the first section of its lines, from Hoboken to Dover, N. J., work to begin in the spring. The cost is estimated at \$20,000,000 including electric power and other equipment.

The Crescent Ring Co., 109 Oliver Street, Newark, N. J., has inquiries out for jewelers' reversible rolls.

Fire, Jan. 28, destroyed a portion of the plant of David Schiffenhaus, 73 Nichols Street, Newark, manufacturer of paper boxes and containers, with loss estimated at \$40,000 including equipment. Plans for rebuilding are under consideration.

The Mohawk Metal Toy Co., Summit and Bleecker Streets, Newark, has leased a portion of the building at 119 Sussex Avenue, for extensions. Max Wechsler is president, and S. Heyman, secretary and treasurer.

Mill Stores, the name of a concern engaged in the direct importing of general hardware and machinery at Masulipatam, India, is looking for a commission agent in a position to buy American made goods on its behalf, and is interested in such products as the following: Perforated steel sheets, stone facing cement, belt fasteners, asbestos goods, genuine emery, hair belting, galvanized pipe and cap welded boiler tubes.

Philadelphia

PHILADELPHIA, Feb. 2.

THE Hall Planetary Thread Milling Machine Co., 4825 Garden Street, Philadelphia, manufacturer of machine tools, has acquired 3 acres at Abbottsford Road and Stockeley Street and will use the site for a new plant.

M. Moister & Co., 3931 North Fifth Street, Philadelphia, manufacturers of portable buildings, are considering the erection of a two-story and basement addition, 100 x 200 ft., at Hunting Park Avenue and American Street. Martin Moister is president.

Fire, Jan. 28, destroyed a portion of the works of the Keystone Table Co., 328-30 Noble Street, Philadelphia, with loss estimated at \$125,000 including equipment.

The F. A. North Co., 1306 Chestnut Street, Philadelphia, manufacturer of pianos, will soon ask bids on general contract for its proposed five-story repair and rebuilding plant, 30 x 175 ft., at 1529 Parrish Street, to cost \$160,000. Amos W. Barnes, Perry Building, is architect. G. Miller is president.

The Foreign Trade Bureau, Philadelphia Commercial Museum, has received the following inquiries: (43170) from the Globe Chair & Wheel Factory, Ltd., Umbilo, Durban, South Africa, desiring to get in touch with American manufacturers in position to supply malleable shell bands for hubs; (43154) from Nanavati Sons & Co., 80 Esplanade Road, Bombay, India, wishing to get in contact with American manufacturers of pumps and pumping machinery, automobile accessories, tools, domestic electrical appliances, etc.; (43169) from the Arctic & Baltic Co., Ltd., 29 Amagerstov, Copenhagen, Denmark, desiring to get in touch with American manufacturers of agricultural machinery and implements; (43162) from Ajax Rahaman & Brothers, P. O. Box 479, Calcutta, India, desiring to secure information and prices of a paper capsule manufacturing machine, a boot and shoe lace weaving machine, and a handkerchief printing machine; and (43155) from Harilal Chhotalal & Brothers, Jetpur, Khatia-war, India, desiring to get in touch with American manufacturers of machinery, railroad supplies, hardware, automobile equipment and accessories.

The Scott Paper Co., Chester, Pa., has acquired property at Front and Market Streets for extensions. It will have plans drawn at an early date for a power house and filtration plant. Other structures are contemplated later.

The Connecticut Electric Mfg. Co., Prospect Street, Trenton, N. J., manufacturer of electrical specialties, will build a one-story addition, for which a general contract has been let to the Karno Smith Co., Trenton.

Motors, electric power equipment, conveying and other machinery will be installed in the four-story printing plant, 78 x 175 ft., to be constructed at 220-24 Spruce Street, Scranton, Pa., by the Scranton Times, estimated to cost \$500,000, for which a general contract has been awarded to Dwight P. Robinson & Co., Inc., 125 East Forty-sixth Street, New York.

The Spring Brook Water Supply Co., Wilkes-Barre, Pa., is disposing of a bond issue of \$2,500,000, a portion of the proceeds to be used for extensions and improvements in waterworks plant. L. A. Watres is president.

The Board of Education, Lewisburg, Pa., plans the installation of manual training equipment in its proposed new senior and junior high school, estimated to cost \$117,000, for which bids will be asked at once on a general contract.

The Doehler Die Casting Co., Pottstown, Pa., has removed the white metal die casting department from its Brooklyn plant to the local works and is adding more than 35 new machines for this department of the business. The local plant will be extended, giving employment to approximately 400 men.

The Williams Motor Car Co., Harrisburg, Pa., has plans for a two-story service, repair and garage building, 95 x 148 ft., to cost \$65,000, for which superstructure work will soon begin.

The South Penn Collieries Co., Pottsville, Pa., is said to be planning the installation of electric power and mining machinery at its Randolph colliery near Port Carbon, Pa.

The State Board of Education, Trenton, has awarded a general contract to John M. Yardley, 1716 Sansom Street, Philadelphia, for the construction of a mechanical shop building at the New Jersey School for the Deaf, Trenton Junction, to cost \$51,320 exclusive of equipment.

Buffalo

BUFFALO, Feb. 2.

BIDS will be received by the superintendent of state prisons, Capitol Building, Albany, N. Y., until Feb. 24 for a refrigerating and cold storage plant at Auburn, N. Y.

The Power Corporation of New York, Watertown, is arranging for the construction of a hydroelectric generating plant on the Black River, near Deferiet, N. Y., with initial installation to consist of three 5000-hp. hydraulic turbines, three 5000 kva. generators and accessory equipment, to cost close to \$900,000. John N. Carlisle is president.

The Chevrolet Motor Co., General Motors Building, Detroit, is said to be arranging for expansion at its assembling plant on East Delavan Avenue, Buffalo, to develop this works as the second largest plant of the company.

The Reeves Mfg. Co., Dover, Ohio, manufacturer of steel products, etc., contemplates the removal of the business of the McLaughlin Co., Brockport, N. Y., manufacturer of galvanized ware, to its main works at Dover. Additional buildings will be arranged at the Dover plant to accommodate the increase. The McLaughlin company was recently acquired by the Reeves organization.

C. Storrs Barrows, 56 James Street, Rochester, N. Y., architect, has plans under way for a two-story automobile service, repair and garage building, 60 x 110 ft., to cost \$75,000 with equipment.

Electric power equipment, conveying, hoisting and other machinery will be installed in the new grain elevator to be constructed by the Superior Elevator Co., Chamber of Commerce Building, Buffalo, near its present plant fronting on the Buffalo Railroad. It is estimated to cost \$1,000,000. Riley E. Pratt is vice-president.

Plans have been filed by the Lipowicz Motor Corporation, 1199 Broadway, Buffalo, for a one and two-story garage and service station to cost \$50,000 exclusive of equipment. Machinery requirements will include a cylinder re boring machine, lathe, drill press, grinder, etc., all electrically operated. L. R. Lipowicz heads the company.

Fire, Jan. 31, destroyed the hollow stay-bolt mill of the Rome Iron Mills, Inc., Rome, N. Y., with a loss of \$100,000. The building was one story, 100 x 160 ft., and housed much valuable machinery.

Bids will be received on a general contract by the Saskatchewan Cooperative Grain Co., Ltd., Regina, Sask., through its engineer, the E. D. Howe Co., 47 West Huron Street, Buffalo, until April 1, for the erection of a grain elevator in Tift Street, Buffalo, to cost \$1,000,000 with equipment. A contract for the substructural work was awarded in December to the Barnett & Record Co., Minneapolis, Minn.

The City Council, Olean, N. Y., is considering the construction of a pumping plant in connection with extensions and improvements in the waterworks and sewage plants, estimated to cost \$150,000. G. R. Miles, City Hall, is city engineer.

Detroit

DETROIT, Feb. 2.

THE C. G. Spring & Bumper Co., 1455 West Thirty-eighth Street, Chicago, manufacturer of automobile springs, bumpers, etc., is enlarging its Detroit plant. A similar expansion program will be carried out at the Chicago works. Christian Gili is president.

The Kellogg Box Board Co., Battle Creek, Mich., recently organized with a capital of \$400,000, has acquired the local plant of the Chicago Paper Mill & Box Co., for \$375,000. Plans are under advisement for remodeling.

The Des Laurien Metal Products Co., Minneapolis, Minn., is planning for the construction of a new factory at Detroit to cost approximately \$50,000. It is proposed to remove the present Minneapolis works to the new location.

The Public Lighting Commission, Detroit, has completed plans for a one-story automatic power substation to cost about \$70,000.

The Consumers' Power Co., Jackson, Mich., is arranging an expansion program in plants and system at Pontiac, Mich., during the year to cost about \$1,000,000, including additional structures and equipment. The company is also planning the installation of new generating equipment in its Fulton Street station, Grand Rapids, Mich., to cost \$85,000, and for extensions and betterments in its steam-operated power plant at Bay City, Mich., to cost approximately \$145,000.

The Wilmot Engineering Co., Hazleton, Pa., manufacturer of coal-mining equipment, coal jigs, etc., is said to have plans under way for the establishment of a factory at Detroit, where operations will be concentrated in the future, removing the Hazleton works to this location.

The Grand Trunk Railway Co., Muskegon, Mich., has plans for the construction of a new engine house, with shop repair facilities, in connection with a proposed terminal yard, estimated to cost \$100,000.

The Signal Electric Mfg. Co., Menominee, Mich., has acquired the plant and business of the Marinette Electric Corporation, Marinette, Mich. Plans are under way for expansion in production.

The Atlas Drop Forge Co., Lansing, Mich., will erect two new plant units to cost \$30,000.

The Detroit Auto-vac Corporation, 3960 Cass Avenue, Detroit, recently organized to manufacture suction cleaners for enclosed automobiles, will operate in its own plant. It is in the market for tubing and aluminum castings. D. Roger Hillis is president.

The Hayes-Ionia Co. is constructing a one-story steel stamping shop, 100 x 200 ft., at Muskegon Avenue and Seventh Street, Grand Rapids, Mich.

New England

BOSTON, Feb. 2.

FROM the standpoint of the dealer, January machine-tool business was one of the quietest on record. An encouraging feature is that dealers have a substantial number of quotations out, the closing of which, however, is indefinite. Additional inquiries have come into the market since last reports, but most of them are for single tools. New England machine-tool manufacturers in general are not securing the volume of business anticipated. During the latter part of December and early in January, business was comparatively good, but since then has grown steadily quieter.

Small tool business holds up well and there is a healthy movement of machine parts out of stock. Some of the largest small tool manufacturers are operating about 80 per cent of capacity, and with normal inventories for the first time since the war.

The shop committee of the trustees of Worcester Polytechnic Institute, Worcester, Mass., has recommended the expenditure of more than \$1,000,000 for improvements, including a mechanical laboratory to cost \$300,000 to \$400,000, as well as the purchase of machinery for various departments.

The Baldwin Chain & Mfg. Co., Worcester, Mass., manufacturer of power-transmission chains, will start work at once on the construction of a new plant, on Southbridge Street, at the boundary line of Worcester and Auburn, in both of which places the land lies. The building will be in Auburn. It will be 160 x 490 ft., one story, excepting at the front, where a second floor will be devoted to offices, and with saw-tooth roof. The materials will be brick, concrete and a maximum of glass in walls and roof. The company proposes to abandon the present plant on Chandler Street immediately upon the completion of the new. The business has grown in a large way until it is on a tonnage basis, requiring a more convenient arrangement than is possible in the present buildings. The new plant will be served by a spur track from the New York, New Haven & Hartford's Norwich division.

Patrick Sweeney, general manager Continental Wood Screw Co., Mt. Pleasant Street, New Bedford, Mass., is taking bids on a proposed three-story, 60 x 100 ft., addition to cost approximately \$50,000. Leary & Walker, Times Building, New Bedford, are the engineers.

Stone & Webster, Inc., Boston, has the general contract for a hydroelectric power plant on the Susquehanna River at Conowingo, Md., for the Susquehanna Power Co., a subsidiary of the Philadelphia Electric Co. The plant will develop 400,000 hp. and will cost approximately \$52,200,000.

Bids are in for the construction of additions and alterations for the technical high school, Walnut Street and Elm Road, Newton, Mass. A turbo-generator and other equipment is needed.

The city of Lynn, Mass., is taking bids for a proposed incinerating plant to cost, with equipment, \$200,000. H. G. Johnson is purchasing agent for the city.

The city of Boston has awarded contract for an elementary school addition, three stories and basement, 40 x 168 ft., in West Roxbury, to cost with equipment \$400,000. C. Howard Walker & Sons, 120 Boylston Street, Boston, are the architects.

Work has begun on a one-story, 70 x 250 ft. service station at Brighton, Boston, for the Brockway Motor Truck Co., 1040 Commonwealth Avenue, Boston.

Plans are completed for a one-story, 104 x 152 ft. foundry contemplated by the Mechanics Iron Foundry Co., 38 Kemble Street, Roxbury, which will require four cranes, 1 to 10 tons. Harry E. Gibby is treasurer. Edward L. Rawson, 6 Beacon Street, Boston, is the architect.

The Cambridge Cement Stone Co., 156 Lincoln Street, Brighton, Mass., plans the construction of a one-story addition, with improvements in present works, to cost \$37,000, including equipment.

The Middlesex Casket Co., Chase Avenue, Webster, Mass., has tentative plans for rebuilding the portion of its factory destroyed by fire Jan. 22, with loss estimated at \$30,000 including equipment.

Fire, Jan. 29, destroyed a portion of the plant of the George L. Cady & Sons Co., Western Avenue, Lowell, Mass., manufacturer of wooden boxes, etc., with loss of \$75,000 including equipment. The adjoining works of the Wesley M. Wilder Iron Co. were also partially destroyed, with loss in excess of \$30,000.

The Industrial Dryer Corporation, Stamford, Conn., recently organized, has leased space in a local building for the manufacture of mechanical drying machinery and parts. Equipment from another works will be removed to the new location and additional machinery installed. Gordon D. Harris, Freeport, L. I., is president; and M. D. Truesdale, Greenwich, Conn., treasurer.

Fire, Jan. 28, destroyed a portion of the two-story factory at Norton, Mass., occupied jointly by the Sturdy Brothers Co., jewelry manufacturer, and the Lac Finishing Co., with loss estimated at \$30,000, including equipment.

Chicago

CHICAGO, Feb. 2.

AS February opens machine-tool buying remains at a reduced rate and, although active inquiries are still fairly numerous, they are slow in reaching the closing stage. The most notable recent development has been the appearance of foreign competition in this market. One local company has purchased 10 large German cutting machines and another has bought one, while a western Illinois manufacturer has closed for two.

Railroad buying is still slow in developing. The Rock Island has ordered a 100-in. boring mill and is inquiring for a staybolt cutting machine, while the Santa Fe has entered the market for a cold saw. Among the major railroad lists that of the Illinois Central is expected to be issued first. This road is constructing an addition to its Burnside shops in Chicago and also contemplates the construction of a freight car repair shop at its Markham yards here. At Paducah, Ky., it will also erect large shops.

Among scattered orders recently placed on the market may be mentioned two 18-in. x 8-ft. cone head engine lathes bought by the American Can Co. for its Clybourn Avenue, Chicago, plant. Another Chicago user has purchased two 50-ton dieing machines. The Nash Motors Co. has placed orders for a 4000-lb. and a 2000-lb. steam hammer. The Chicago, Burlington & Quincy has ordered a used 3-ft. radial drill.

For the first time in months there appears to be a tendency toward advances in machine tools. An Ohio manufacturer of milling machines has announced an adjustment in prices effective Feb. 1 which advances most of its sizes 5 to 10 per cent. A maker of low-priced engine lathes has advanced two models \$100 to \$150.

The Mather Stock Car Co., Chicago, is asking for prices on the following machines, either new or good used equipment:

- One rotary shear for cutting ¼-in. steel plate.
- One punch press for punching holes up to ¾ in. in flange of ¼-in. pan-shaped diaphragms.
- One 28 to 30-in. shaper for making dies.
- One pneumatic compression riveter, capacity ¾ to 1-in. rivets, reach 8 to 36 in.

The Crane Market

A DECIDED increase in the volume of inquiry for electric overhead traveling cranes is evident but with few exceptions old inquiries in the market are still pending. Business in hand power cranes is light, but there are a fair number of inquiries current. The Public Service Production Co., Newark, N. J., has revised its inquiry for two 20-ton hand power cranes for the Bath-Portland Cement Co., Sands Eddy, Pa., changing the spans and has added a 5-ton hand power crane. This company is also in the market for a 6-ton hand power crane for a power station in the Newark district. Gibbs & Hill, consulting engineers, New York, are about to close on the 30-ton, 66-ft. span and 15-ton, 35-ft. span electric cranes for the Virginian Railway's new shop at Mullins, W. Va., for repair of electric locomotives. This railroad is electrifying from Norfolk, Va., to Mullins. The Broad River Power Co., Reading, Pa., which has closed on a 20-ton crane, bought direct instead of through engineers.

In the Pittsburgh district the Carnegie Steel Co. has placed two scrap yard cranes and it is reported from Detroit that the Ford Motor Co. has divided 14 cranes for its new River Rouge steel works between two builders.

Among recent purchases are:

Levering & Garrigues, New York, two 5-ton, 60-ft. 10-in. span, 3-motor overhead cranes and one 10-ton, 60-ft. span, 5-motor crane from the Milwaukee Electric Crane & Mfg. Co.

General Electric Co., Schenectady, N. Y., a 3-ton, 5-ton and 10-ton overhead crane for Cincinnati shops from the Northern Engineering Works.

Industrial Engineering Co., New York, a 5-ton, 83-ft. span

electric crane for North Bergen, N. J., from the Milwaukee Electric Crane & Mfg. Co.

Campbell Foundry Co., Harrison, N. J., a 5-ton, 28-ft. span, 3-motor crane, reported purchased from the Chesapeake Iron Works.

Thomas E. Murray, consulting engineer, New York, two 200-ton overhead cranes, reported to have been awarded to a Michigan builder.

William Cramp & Sons, Philadelphia, a 15-ton, 60-ft. span overhead crane for the De La Vergne Machine Co., from an eastern builder.

Broad River Power Co., Reading, Pa., a 20-ton, 33-ft. span, 1-motor overhead crane from the Northern Engineering Works.

Ridge Lumber Co., Conney, N. C., a 20-ton used McMyler-Interstate locomotive crane from Philip T. King, New York.

C. J. Mallett & Co., Westchester Square, New York, a 25-ton electric locomotive crane from the Browning Co.

Carnegie Steel Co., Pittsburgh, two 25-ton, 70-ft. span magnet cranes for the Hays scrap storage yard from the Alliance Machine Co.

National Radiator Co., for its Trenton, N. J., plant, a 2-ton, 45-ft. span overhead crane from Manning, Maxwell & Moore, Inc., Shaw Electric Crane works.

Ford Motor Co., Detroit, for new open-hearth plant at River Rouge, 14 cranes from the Morgan Engineering Co. and the Alliance Machine Co.

One hand chain hoist, 1/2-ton to 2-ton.
One electric hoist, 1-ton and larger.
One pneumatic hoist, 1-ton and larger.

Jesse T. Duryea has acquired for the Wolff Mfg. Co., 255 North Hoyne Avenue, Chicago, of which he is president, a two-story factory at 216 Carroll Avenue, 139 x 177 ft., formerly occupied by the Monighan Machine Co. prior to the construction of its present plant at Augusta and Kilpatrick Streets.

Frank E. Moffett and Joseph R. Warnock are preparing to open a general machine shop at Ladd, Ill.

The Hubbard Steel Foundry Co., East Chicago, Ind., is constructing the first unit of a machine shop, 150 ft. in length, with a 70-ft. main aisle and a 40-ft. leanto. Future plans contemplate the extension of the building to 600 ft. in length. A 50-ton crane will be installed in the main bay and a 10-ton crane in the leanto. Machinery to be installed in the shop will include a 20-ft. vertical boring mill, lathes, planers and shapers of large types. The shop is being built for maintenance purposes, but contract work will also be taken on. The Hubbard Steel Foundry Co. is the only manufacturer of chilled iron rolls west of Canton, Ohio. In its No. 1 plant castings as large as 50 tons can be made. In its No. 2 foundry castings of all sizes are turned out. Railroad castings and miscellaneous castings of light section are the principal products of that plant. The company is equipped to pour 4500 tons per month and in normal times employs 800 men. The contract for building the machine shop was awarded to the Worden-Allen Co., Milwaukee.

With the completion of a building, 126 x 170 ft., the Mueller Iron Foundry Co., East Eldorado Street, Decatur, Ill., will nearly triple its floor space. The building, which is of brick and steel construction, will cost \$10,000.

The Streator Foundry Co. plant, Streator, Ill., was recently damaged by fire.

The Hayes-Custer Stove & Furnace Co., Bloomington, Ill., is building a two-story addition, 35 x 85 ft., which will be utilized for warehouse purposes and for the manufacture of gas ranges, which the company is just now beginning to make.

The Kansas City Smelting Co., Kansas City, Mo., has purchased the plant it occupies on a tract, 125 x 300 ft., at the corner of Guinotte and Park Avenues. The company has occupied the property one year. Improvements contemplated will increase the plant space 50 per cent. Formerly having confined its production to type metal, the company plans to make all white metal alloys and to accomplish this an 800-ton hydraulic press for use in making pipe lead will be installed.

The Standard Foundry Co., Racine, Wis., manufacturer of cylinder castings, will start immediately with the construction of a new foundry and core room, which will increase its capacity from 20 tons to 50 tons a day. The cost of the improvement is estimated at \$250,000. A. A. Wickland, Chicago, has been retained as engineer.

In the issue of THE IRON AGE of Jan. 8 it was incorrectly

stated that the Dallas Brass & Copper Co., 820 Orleans Street, Chicago, had awarded a contract for a one-story plant on Belden Avenue to cost \$7,500. The plant, which will embrace a casting shop and a rolling mill, will represent an expenditure of \$250,000.

Bliss & Laughlin, Inc., 155th Street, Harvey, Ill., manufacturer of shafting and transmission equipment, is taking bids for a one-story addition, 160 x 260 ft., to cost \$65,000. The Arnold Co., 565 West Washington Street, Chicago, is architect and engineer.

The Board of Education, Kearney, Neb., plans the installation of manual training equipment in its proposed two-story and basement junior high school, estimated to cost \$225,000, for which bids are being asked on a general contract. Davis & Wilson, 625 South Thirteenth Street, Lincoln, Neb., are architects.

The C. A. Dunham Co., 309 East Main Street, Marshalltown, Iowa, has awarded a general contract to the Tepager Construction Co., Albert Lea, Minn., for a two-story addition, 50 x 150 ft., for the manufacture of furnaces and heating equipment, estimated to cost \$50,000.

James B. Clow & Sons, 534-46 South Franklin Street, Chicago, manufacturers of pipe, plumbing equipment, etc., will begin work this month on their proposed four-story and basement plant, 115 x 200 ft., estimated to cost \$500,000 with equipment. A general contract recently was let to the Leonard Construction Co., 37 South Wabash Avenue, which also has acted as architect for the work.

W. E. Cook, city clerk, Stanton, Neb., is taking bids until Feb. 17 for a triplex pumping unit and other equipment for waterworks service.

The Board of Education, Fairfield, Ill., is considering the installation of manual training equipment in the proposed two-story community high school, estimated to cost \$150,000, for which plans are now under way. It is expected to ask bids on a general contract this month. A. L. Pillsbury, Peoples' Bank Building, Bloomington, Ill., is architect.

St. Louis

ST. LOUIS, Feb. 2.

SEARS, ROEBUCK & CO., Homan and Arthington Streets, Chicago, contemplate the construction of a power house at their proposed four-story to ten-story distributing plant at Kansas City, Mo., estimated to cost \$4,000,000. G. C. Nimmons & Co., 123 South Michigan Avenue, Chicago, is architect; M. C. Schwab, 30 North Michigan Avenue, is mechanical engineer.

The Southwestern Light & Power Co., Lawton, Okla., is contemplating extensions and improvements in its plant and system during the year to cost approximately \$200,000 with equipment.

The Bridgeport Machine Co., Wichita, Kan., manufacturer of oil-well equipment, is planning for the early re-

moveal of its branch plant at Marietta, Ohio, to Wichita, where it is proposed to concentrate operations. The Wichita works will be extended. James A. Woods is president.

L. B. Hoffman, 233 East Ninth Street, Kansas City, Mo., and associates are considering the erection of a four-story and basement automobile service, repair and garage building, 96 x 115 ft., at 906-10 McGee Street, to cost \$100,000 with equipment.

The Board of Fire and Water Commissioners, Kansas City, Mo., H. H. Mathonet, secretary, is asking bids about Feb. 15 for equipment for installation at the municipal waterworks, including motor-driven centrifugal pumps, electric motors, outdoor substation equipment, switchboards and electrical equipment, filter plant and pumping station, high pressure pumping station, valves, etc. Fuller & Maitland, Walsix Building, are consulting engineers.

The Board of Education, Jefferson City, Mo., is planning for the installation of manual training equipment in its three-story and basement senior and junior high school estimated to cost \$300,000, for which bids will soon be asked on a general contract. Owen, Payson & Carswell, Interstate Building, Kansas City, Mo., are architects.

The Chandler Ice Co., Chandler, Okla., has plans for a one-story addition to its ice-manufacturing plant, 55 x 110 ft., to cost \$40,000 with equipment.

The Stewart Sand Co., American Bank Building, Kansas City, Mo., will begin superstructure work on a new sand and mortar plant at Grand Avenue and the Missouri River, estimated to cost \$75,000 with equipment, including hoisting, conveying, loading and other machinery. Hans Von Unwerth, Finance Building, is consulting engineer.

The S. R. Thomas Automobile Co., 400 Center Street, Little Rock, Ark., has awarded a general contract to John Schmeltzer, 410 East Twelfth Street, for a one and two-story service, repair and garage building, 140 x 200 ft., to cost \$100,000 with equipment. Thomas Harding, Southern Trust Building, is architect.

Cleveland

CLEVELAND, Feb. 2.

REPORTS regarding the condition of the machinery market are conflicting. Business with some manufacturers has improved and January sales will nearly equal those of December. Others have experienced a dull month. Automatic screw machinery has picked up, but orders are almost entirely for single machines. The demand for punching and shearing machinery is dull. With dealers business which improved around the middle of the month was quiet the past week. A local manufacturer Friday booked an export order from France for 10 small turret lathes for brass working. There is an almost total absence of demand from the automotive industry. The New York Central Railroad has issued inquiries for a 28-in. upright drilling machine and a No. 3 Chambersburg vertical punching and shearing machine or its equivalent.

Heavy handling equipment is showing more life. The Toledo & Ohio Central Division of the New York Central Railroad has issued an inquiry for a car dumper to be erected at Toledo, Ohio. Electrical equipment has become more active. The Diamond Alkali Co. has placed a contract with the General Electric Co. for a drive for its new cement plant at Fairport, Ohio. It will include four 500-hp. supersynchronous motors and a 5000-kw. turbine.

The Broden Construction Co. has been organized to manufacture cold rolling and wire drawing machinery. It has taken over the Cleveland Machine Co., which has been engaged in jobbing work and the manufacture of special machinery and is located in the plant of the latter company at 1265 East Fifty-fifth Street. Officers are G. A. Broden, president; H. D. Hewitt, vice-president, and B. F. Hewitt, secretary and treasurer.

The Toledo-Edison Co., Toledo, Ohio, will purchase turbines, generators, switchboard, coal and ash handling machinery, cranes and other equipment for an addition to its Toledo, Ohio, power plant.

The C. L. Gougler Machine Co., Kent, Ohio, plans the erection of a one-story and part basement factory, 40 x 140 ft.

The Sterling Brass Co., 9600 St. Catherine Avenue, Cleveland, has completed plans for a two-story and basement factory, 40 x 185 ft. Allen Sogg, 3030 Euclid Avenue, is the architect and engineer.

The Kuhlman Engineering Co., Locust and Champlain

Streets, Toledo, Ohio, manufacturer of switchboards, steel cabinets, etc., will enlarge its plant by the erection of a one-story building, 27 x 100 ft. L. J. Harpat is president. Langdon-Hohly & Gram, Nicholas Building, Toledo, are the architects.

The Marquard Sash & Door Mfg. Co., 307 Canal Road, Cleveland, has placed a general contract with the Forest City Steel & Iron Co., Cleveland, for a one-story woodworking shop, 80 x 300 ft.

The McDonald Mfg. Co., 5015 Wellesley Avenue, Cleveland, manufacturer of press registers, has awarded contract for a one-story addition, 38 x 60 ft.

The Board of Education, Toronto, Ohio, is planning the installation of manual training equipment in its proposed high school estimated to cost \$250,000. Peterson & Clark, Steubenville Bank & Trust Building, Steubenville, Ohio, are architects.

Cincinnati

CINCINNATI, Feb. 2.

MACHINE-TOOL orders continue at a fair rate, but no large purchases have been reported. Export business is good, however, one company receiving an order for three lathes, while another booked a planer for Japan. The Russian Government is said to be continuing its purchases of machinery and other equipment in this country, but as far as can be learned manufacturers in this territory have not yet participated to a large extent.

The Kelly Press Co. bought two large planers, and the Texas Gulf Sulphur Co. one. The Louisville & Nashville Railroad will probably close on its list this week, as will the American Rolling Mill Co. Interest is centered on the large shops to be erected by the Illinois Central Railroad at Paducah, Ky., and one of the largest lists of tools ever received from this road is expected to be issued in the near future. Railroad and automotive buying has not developed to any extent, most of the orders coming from industrial concerns outside of these fields. Used machinery is moving in fair volume, and small tools are fairly active.

The J. Charles McCullough Seed Co., Cincinnati, will shortly take bids on an addition to its plant at Lock Street and Eggleston Avenue. It will be 70 x 70 ft., nine stories. Material handling equipment will be installed. Harry Hake is architect.

The Kodak Radio Corporation, Cincinnati, a merger of the Kodak Mfg. Co. and the Automotive Electrical Devices Co., has been incorporated with a capitalization of \$220,000. It will continue the manufacture of electrical devices and radio apparatus carried on by the two former companies. Plans for extensions are being considered. C. E. Ogden is president.

The Dayton Air Friction Carburetor Co., Dayton, Ohio, has purchased the plant formerly occupied by the Meeker Mfg. Co. and will occupy it about March 1. It manufactures carburetors and plans are being considered to add other lines.

The Springfield Metallic Casket Co., Springfield, Ohio, has awarded contract for an annex to its plant, 90 x 60 ft., three stories, work on which will start as soon as weather conditions are favorable. E. N. Lupfer is president.

The Terminal Cold Storage & Ice Co., Baker Street, Dayton, Ohio, will begin foundations for a two-story addition, 35 x 90 ft., to cost \$42,000 with equipment. Harry Brenner is president.

The Board of Education, Rush Creek District, Bremen, Ohio, plans the installation of manual training equipment in a two-story and basement high school, 120 x 148 ft., to cost approximately \$170,000, for which bids will be asked at once on a general contract. F. J. Porter, 1934 Summit Street, Columbus, Ohio, is architect.

The Air Friction Carburetor Co., Linden Avenue, Dayton, Ohio, is considering the erection of a two-story addition, 60 x 175 ft., to cost \$75,000 with equipment.

Fire, Jan. 22, destroyed a portion of the cooperage plant of the J. D. Hollingshead Co., Louisville, with loss estimated at \$200,000 including machinery. Rebuilding plans are being considered. Headquarters of the company are at 208 South LaSalle Street, Chicago.

The Meteor Motor Car Co., Piqua, Ohio, has tentative plans for a new two-story plant, 60 x 600 ft., for the manufacture of automobile equipment, estimated to cost \$135,000 including machinery.

The Common Council, Milan, Tenn., is arranging for a bond issue of \$50,000, the proceeds to be used for extensions and betterments in the municipal electric light and power plant and waterworks.

The Southern Cotton & Paper Co., Alton Park, Chattanooga, Tenn., has plans for extensions in its paper department with the installation of additional machinery to double, approximately, the present output. Mercer Reynolds is president.

The Denison Sewer Pipe Co., Denison, Ohio, is having plans drawn for a one-story addition, 112 x 290 ft., to cost about \$100,000 including machinery. Lockwood, Greene & Co., Hanna Building, Cleveland, are architects and engineers.

The Tennessee Electric Power Co., Hamilton National Bank Building, Chattanooga, Tenn., has acquired light and power properties in the vicinity of Smithville, Tenn., and plans extensions in this district.

South Atlantic States

BALTIMORE, Feb. 2.

PLANs have been filed by the Pittsburgh Plate Glass Co., Frederick Avenue, Baltimore, for a three and one-half story addition, 40 x 85 ft., to cost about \$65,000, for which a general contract has been awarded to the Charles L. Stockhausen Co., Inc. Flourney & Flourney, 306 St. Paul Street, are architects. Headquarters of the company are in the Frick Building, Pittsburgh.

The United States Engineer, Old Land Office Building, Washington, will take bids until March 3 for motor-driven pumping units for the water supply system of the District of Columbia.

The Broad River Power Co., Columbia, S. C., has acquired the municipal electric light and power plant at Batesburg, S. C., and plans extensions. The company will also build a new power substation at Gist and Gervais Streets, Columbia.

The Terrell Machine Co., Charlotte, N. C., is arranging for an addition to its plant to cost more than \$45,000. Lockwood, Greene & Co., Charlotte, is architect and engineer.

John W. McCauley, P. O. Box 373, Roanoke, Va., is in the market for machine tools and other equipment for a local automobile repair shop.

D. A. Monroe, Biscoe, N. C., and associates have preliminary plans under advisement for the construction of a hydroelectric generating station on the Gum Swamp, in the Norman Mill section, estimated to cost \$250,000.

R. P. Johnson, Wytheville, Va., machinery dealer, has inquiries out for a jaw crusher, mounted on wheels or skids, opening about 11 x 22 in., with elevator and screen; one or more common sanders, Ober type, and one lathe, about 44 in. bed.

The Reynolds & Manley Lumber Co., Quincy, Fla., recently organized, has plans under way for the construction of a new mill in the vicinity of Savannah, Ga., including band mill, planing mill, kilns, power house, etc. H. L. Manley and H. A. Reynolds head the company.

Hardy & Newson, La Grange, N. C., manufacturer of agricultural implements, etc., have begun the construction of a new one-story foundry, with an output of about 45 tons of castings per day. It is also considering the erection of a one-story machine shop to cost about \$25,000. J. A. Daugherty is general manager.

The Lehmler-Schwartz Co., Seventh Street, Richmond, Va., manufacturer of tin foil and kindred products, plans extensions and improvements to cost about \$30,000 including equipment.

K. S. Mitchell, Windsor, N. C., is arranging for the purchase of machinery to manufacture wire nails.

The general purchasing officer, Panama Canal, will take bids until Feb. 19 for steel and iron pipe, lead pipe, boiler tubes, corrugated roofing, welding rods, wire lath, fire brick, brass chain, scales, sewer pipe and bends, etc., Panama Circular 1854.

The Common Council, Elkin, N. C., is planning to rebuild the portion of the municipal electric lighting plant recently destroyed by fire.

The Board of Education, Richmond, Va., is considering the installation of manual training equipment in its proposed Northside junior high school, reported to cost \$350,000, for which bids are being asked on a general contract. Charles M. Robinson, School Board and Builders' Exchange Building, is school architect.

The Surrey Lumber Co., Dendron, Va., has preliminary plans for rebuilding the portion of its box-manufacturing plant destroyed by fire Jan. 23 with loss estimated at \$250,000 including machinery.

The Asheville Supply & Foundry Co., Asheville, N. C.,

has acquired property in the Biltmore section, and is said to be contemplating the construction of a new plant. It is proposed to remove the present works later to the new location.

A. W. McMurray, Shelby, N. C., and associates are organizing a company which plans to erect a high tension transmission line between Shelby and Beaver Dam. Considerable electrical equipment will be required.

Pittsburgh

PITTSBURGH, Feb. 2.

SALES of single machine tools are fairly numerous in this territory, but general business still lacks volume. Based on inquiries and pending business, the prospect still is good, but buyers are in no hurry to place orders. The H. K. Porter Co., Pittsburgh, recently bought a locomotive frame slotter from the Consolidated Machine Tool Corporation and the Washington Mold & Foundry Co. Washington, Pa., was a recent buyer of a 36-in. open side Dietrick & Harvey planer. The Westinghouse Electric & Mfg. Co. has bought a few tools against its quarterly list.

Arrangements are being completed by the United Engineering & Foundry Co. Farmers' Bank Building, Pittsburgh, for the sale of its plant at Youngstown, Ohio, known as the Booth Foundry, idle for some time past. It is expected to be occupied by a manufacturer of automobile parts with headquarters at Detroit, name being temporarily withheld.

Fire, Jan. 25, destroyed a portion of the three-story distributing building and headquarters of the Contractors' Machinery, Mine, Mill & Supply Co., 318-20 Penn Avenue, Pittsburgh, with loss estimated at \$150,000 including equipment. It is planned to rebuild.

The General Contracting Corporation, Columbia Building, Pittsburgh, has acquired seven acres at Wellsville, Ohio, for branch works. The site is improved with a one-story building, 80 x 250 ft., with wing, 70 x 70 ft., to be used as a machine shop. The other portion of the site will be developed as a storage and distributing plant for contractors' equipment.

The Board of Education, Uniontown, Pa., is considering the installation of manual training equipment in its two proposed junior high schools, to be known as the Benjamin Franklin and Lafayette schools, respectively, estimated to cost \$280,000 each. H. W. Altman, Fayette Title & Trust Building, is architect for the Benjamin Franklin school, and Emil R. Johnson, Fayette Title & Trust Building, architect for the other structure.

The Borderland Coal Corporation, Borderland, W. Va., is in the market for small reversing gears and is desirous of getting in touch with manufacturers. L. E. Armentrout is vice-president.

The Board of Education, Charleston Independent School District, Charleston, W. Va., plans the installation of manual training equipment in its proposed senior high school building, for which a fund of \$600,000 is available. Bids recently received on a general contract have been rejected, and new estimates will be asked on revised plans. Warno, Tucker & Patterson, Masonic Temple Building, are architects.

The Board of Education, Warren, Pa., is arranging a bond issue of \$400,000, the proceeds to be used for the erection of a new junior high school with manual training and vocational departments.

Indiana

INDIANAPOLIS, Feb. 2.

PRELIMINARY plans are under consideration by the Terre Haute, Indianapolis & Eastern Traction Co., Terre Haute, Ind., for rebuilding the portion of its car repair shops destroyed by fire Jan. 27, with loss estimated at \$55,000 including equipment. G. O. Nicoli is general manager of the Terre Haute Division.

G. Ittenbach & Co., 916 Harrison Street, Indianapolis, operating a stone-cutting and working plant, have awarded a contract to the Robert Berner Structural Steel Co., Indianapolis, for a new one-story plant, 125 x 250 ft., to cost about \$50,000 with equipment.

The Piston Service Co., Indianapolis, has removed its plant to larger quarters at 409 North Capitol Avenue, where additional equipment will be provided.

The Cannelton Sewer Pipe Co., Cannelton, Ind., has preliminary plans for additions to cost about \$50,000, including equipment. Work will begin early in the spring.

The Central Lumber & Mill Co., 247 Calumet Street, Hammond, Ind., has plans for a one-story rear addition,

100 x 100 ft., and one-story top addition to existing building, 60 x 135 ft., to cost approximately \$70,000. Mac Turner, 629 Hohman Street, is architect. W. G. Paxton is president.

The Hubbard Steel Foundry Co., East Chicago, Ind., will break ground in March for a one-story machine shop addition, 110 x 150 ft., for which plans are being completed, to cost \$55,000. James Thompson is company engineer, in charge.

The Holt & Brandon Ice & Cold Storage Co., 820 Walnut Street, Evansville, Ind., has engaged the George B. Bright Co., 2615 Twelfth Street, Detroit, architects and engineers, to prepare plans for its new ice-manufacturing and cold storage plant, estimated to cost \$150,000 with equipment. Bids will be asked in the spring.

The Lehman Mfg. Co., Cannelton, Ind., manufacturer of toys, is planning for a new three-story factory, 75 x 300 ft., estimated to cost \$300,000 with equipment.

The Board of Education, 150 North Meridian Street, Indianapolis, is considering the installation of manual training equipment in the proposed West Side school, estimated to cost \$500,000, for which bids will soon be asked on a general contract. Vonnegut, Bohn & Miller, Indiana Trust Building, are architects.

The Dalton Foundries Co., Warsaw, Ind., will start work immediately on the construction of an addition, which will require the employment of 100 additional molders and core makers.

The Indiana Metal Products Co., Muncie, Ind., recently purchased the equipment of the Maitlen Iron Works and has moved it to its plant at North Hackley Street and the Chesapeake & Ohio Railroad. It will manufacture architectural and miscellaneous iron work, as well as special equipment for shops and factories.

Milwaukee

MILWAUKEE, Feb. 2.

JANUARY business in machine-tools, as a whole, was satisfactory and equal to expectations. The rate of inquiry speeded up materially when compared with the October-December period, and is accepted as the forerunner of a more active demand in February and March. Favorable signs as to future business in the foundry and machine shop continue. Employment officials report a substantial increase in calls for molders, coremakers, patternmakers and foundry laborers, and describe this as the best demand at the moment. Skilled machinists also are wanted in larger number.

The Beloit Iron Works, Beloit, Wis., manufacturer of paper and pulp mill machinery, has acquired a tract of 32 acres in South Beloit, within the State boundaries of Illinois, with the intention of replacing its present plant completely within the coming five years. Preliminary work will be done during the summer. Details are not yet ready for publication, however. Elbert H. Neese is vice-president and general manager.

The Rhinelander, Wis., Board of Education is asking bids until Feb. 26 for the construction of the first unit of a new junior high and vocational training school, designed by Smith, Reynolds & Brandt, architects, Manitowoc, Wis., and estimated to cost \$200,000. Work is to be completed about Sept. 1, and equipment will be purchased in July and August. Mrs. Anna Moe is secretary of the board.

The Burgess Battery Co., Madison, Wis., manufacturer of dry cell batteries, broke ground Jan. 26 for a one-story addition, 62 x 252 ft., made necessary by the heavy increase in orders, largely from the radio industry. The cost is estimated at \$75,000. A number of extensions of lesser size were made during 1924.

The F. Krieger Machine Co., Wisconsin Rapids, Wis., is planning enlargement of its shop and the addition of considerable equipment for quantity production of a line of manual tools and specialties for machine shops, automotive service stations and farmers. Stress will be placed on production of a safety cotter pin extractor recently issued.

The Fox Motor Sales Co., Madison, Wis., Ford and Lincoln distributor, has acquired a site, 132 x 224 ft., on Johnson Street, for the immediate construction of a two-story garage, sales and maintenance building, 100 x 200 ft., with part basement, to cost \$115,000 complete. Neil W. Fox, 105-111 East Doty Street, is president.

The Topp-Stewart Tractor Co., Clintonville, Wis., which has been operating in a limited way for some time, has decided to take advantage of the broadening market by increasing its production. This will necessitate some replacements of equipment and a general overhauling of the plant.

Dr. W. H. Finney is president, and A. C. Cathers, secretary and manager.

The Chippewa Air Gauge Co., Chippewa Falls, Wis., has been incorporated with a capital stock of \$10,000 to manufacture metering and measuring devices, pressure gages, etc. The principals are W. P. Kennedy, D. A. McDonald and T. A. Willenbockel, all of Chippewa Falls. A plant will be established at once and will require considerable new and used machinery, now being purchased.

The Rossmessl-Wagner Motor Co., 577 State Street, Appleton, Wis., is buying equipment for its new \$35,000 garage and service building, two stories, 50 x 150 ft., to be ready about April 1. The shop area will be about 3000 sq. ft.

Gulf States

BIRMINGHAM, Feb. 2.

TENTATIVE plans are said to be under consideration by the Seaboard Air Line Railway Co., Norfolk, Va., for a new engine house and machine shop at Coleman, Fla., to cost approximately \$70,000 with equipment. W. D. Faucette is chief engineer.

The Pepperell Mfg. Co., Bladeford, Me., plans the construction of a power house at its proposed new cotton mill at Opelika, Ala. A portion of the mill equipment at Bladeford will be removed to the new location. Russell H. Leonard is treasurer.

The Texas Public Utilities Co., Interurban Building, Dallas, Tex., a subsidiary of the Southwestern Power & Light Co., will make extensions at its steam-operated electric generating plant at Trinidad, Tex., estimated to cost \$3,000,000 with machinery.

C. W. Blue, 112 South Buford Street, Montgomery, Ala., is planning to purchase concrete-mixing machinery and is desirous of getting in touch with manufacturers of such equipment.

Electric power equipment, hoisting, conveying and other equipment will be installed in the new mill and grain elevator to be erected at Cedar Grove, La., by the Shreveport Mill & Elevator Co., recently organized by Frank Davis, head of the Marshall Mill & Elevator Co., Marshall, Tex., and associates. It is estimated to cost \$500,000 with machinery.

The Garrison Brick Co., Garrison, Tex., is planning for extensions, including the construction of a boiler plant and the installation of machinery for the manufacture of hollow tile.

The Board of School Trustees, Palestine, Tex., plans the installation of manual training equipment in its proposed junior high school estimated to cost \$175,000, for which bids will be received on a general contract until Feb. 17. Theodore S. Maffitt, Palestine, is architect.

The Board of Works, Houston, Tex., is contemplating the construction of two pumping plants in connection with the proposed construction of a reservoir and other extensions in the municipal waterworks, estimated to cost \$500,000. It is purposed to arrange a bond issue. J. C. McVea is city engineer.

W. M. Smith & Co., First Avenue, Birmingham, has inquiries out for a steel building standardized type, from 4000 to 10,000 sq. ft. of floor space.

The Common Council, Jonesville, Miss., is arranging a bond issue of \$40,000, the proceeds to be used for extensions in the municipal electric light and power plant and waterworks.

The Lakeland Brick & Tile Co., Lakeland, Fla., recently organized, has acquired about 65 acres and contemplates the construction of a new plant for the manufacture of brick and tile products estimated to cost \$150,000. T. H. McArdie and R. S. Hall head the company.

The Comal Power Co., affiliated with the San Antonio Public Service Co., 201 North St. Marys Street, San Antonio, Tex., has taken title to property at New Braunfels as a site for a steam-operated electric generating plant to cost \$250,000. E. H. Kifer is vice-president and general manager of the San Antonio company.

The Grass Fibre Pulp & Paper Corporation, Leesburg, Fla., recently reorganized, is planning for a bond issue of \$300,000, a portion of the proceeds to be used for extensions and improvements at its local mills. S. J. Sligh, 624 North Orange Street, Orlando, Fla., is president.

The Light and Water Department, Vero, Fla., is planning to purchase a motor-generator set, direct connected, with switchboard and auxiliary apparatus, also one 750-hp. Diesel engine and accessory equipment. Harry W. Damerow is superintendent.

Pfeiffer & O'Reilly, Hahn Building, Miami, Fla., architects, have plans for a two-story automobile service, repair and garage building estimated to cost \$75,000.

Pacific Coast

SAN FRANCISCO, Jan. 28.

THE Electric Lawn Mower Corporation, Sacramento, Cal., recently formed with a capital of \$50,000, is completing plans for the erection of a new factory to cost close to \$40,000 with equipment. Walter W. Campbell, 3325 J Street, Sacramento, heads the company.

The Edgar W. Anderson Co., Oakland, Cal., has been organized to operate a sheet metal plant at 3103 San Pablo Avenue with department for the manufacture of heating and ventilating equipment. Edgar W. Anderson, formerly connected with the Oakland Machinery Co., heads the new organization.

The Pacific Fruit Express Co., Southern Pacific Building, San Francisco, has awarded a general contract to Guthrie & Co., Portland, Ore., for excavations for its proposed car repair shops at Nampa, Idaho, estimated to cost \$500,000 with equipment.

The Hofius Steel & Equipment Co., Seattle, Wash., has plans for a new one-story building to be equipped as a frog and switch manufacturing shop, 60 x 160 ft. E. J. Murphy is company engineer.

The Haddon Automatic Sprinkler Co., 930 Maple Avenue, Los Angeles, manufacturer of sprinkling equipment, has plans in progress for a one-story factory to cost \$42,000 with machinery.

John M. Cooper, Marsh-Strong Building, Los Angeles, architect, is preparing plans for a one-story automobile service, repair and garage building, 100 x 330 ft., to be occupied by the Pelton Motor Car Co., estimated to cost \$75,000.

At a special election at Tombstone, Ariz., citizens have approved a bond issue of \$25,000 for the construction of a municipal electric light and power plant.

The Table Mountain and Thermalito Irrigation Districts, Oroville, Cal., have secured permission to construct a hydroelectric power plant on Concow Creek with initial output of 3010 hp. The project is estimated to cost \$115,000 including transmission system.

The Pullman Car & Mfg. Corporation, 79 East Adams Street, Chicago, Ill., has acquired 22 acres of land on the tidewater at Seattle, and plans for the construction of a railroad car repair and reconditioning plant estimated to cost \$750,000 with equipment. The works will include a power house.

The Common Council, Auburn, Wash., plans the installation of a number of pumping units in connection with proposed extensions in the municipal waterworks. The entire project will cost about \$200,000. Shorts & Denny, Alaska Building, Seattle, are attorneys for the work, and W. J. Roberts, Puget Sound Bank Building, Tacoma, Wash., hydraulic engineer.

The Crown-Willamette Paper Co., 248 Battery Street, San Francisco, is reported to be arranging for a new plant to manufacture paper bags and containers in the vicinity of Camas, Wash., to cost \$500,000 including machinery.

The White Truck Co., 1490 Market Street, San Francisco, has taken bids on a general contract for the erection of a one-story plant at Eleventh and Mission Streets to cost \$80,000. H. H. Gutterson, 526 Powell Street, is architect.

The Lloyd Co., mill, logging and marine supplies, Hewett and Grand Avenues, Everett, Wash., is inquiring for 20 or

30-hp. marine pipe boilers, new or used, the same type as used by the Government during the war.

Stevens & Koon, Portland, Ore., consulting engineers, are preparing plans for a municipal hydroelectric water power development on the Clearwater River, near Reuben Rapids, for the city of Lewiston, Idaho. Plans call for three units of 4000 hp. each, which, with a complete transmission system, will cost \$2,000,000.

Canada

TORONTO, Feb. 2.

MACHINE-TOOL sales the past week improved slightly, but the chief interest is in future business. According to a local manufacturer of engines, pumps and motors, an excellent lot of prospects are developing, and substantial improvement is anticipated. Machinery and small tool departments are the bright spots of the day. The Canadian farmer is buying equipment more freely than for some time.

The Dominion Sheet Metal Co., Hamilton, Ont., is building an addition to cost \$5,500.

The Callendar Foundry Co., Guelph, Ont., is contemplating building an addition.

The Montreal Harbor Commission, Montreal, is having plans prepared for the construction of grain elevator No. 3. John S. Metcalfe Co., Ltd., is engineer.

The Quebec Pulp & Paper Co., Ltd., Quebec, proposes to build a paper mill at Sillery, Que., to cost about \$10,000,000. George Hardy, New York City, is engineer.

The Hy-Lo Jacks, Ltd., recently incorporated, with head office at Toronto, will build a plant at Strathroy, Ont., for the manufacture of jacks, hoisting equipment, machinery, etc. John A. Carruthers, Strathroy, is local manager.

The Baynes Carriage Co., Hamilton, Ont., has awarded a general contract to the Canadian Contracting & Engineering Co. for alterations and extensions to its plant. Additional equipment will be installed.

The American Radiator Co., Dufferin Street, Toronto, has let contract to Brown & Cooper, Ltd., 297 Carlton Street, for repairs to its plant recently damaged by fire. Equipment will be replaced.

The factory of the Guelph Paper Box Co., Waterloo Street, Guelph, Ont., was destroyed by fire Jan. 26 with a loss of \$40,000. It was owned and operated by J. J. Small.

The American Can Co., Vancouver, B. C., propose to start work in the spring on the erection of an addition to its plant to cost \$1,000,000. The steadily increasing demand for cans and other containers makes this step necessary.

New refractory products have been put on the market by the Standard Fuel Engineering Co., 667 Post Avenue, South, Detroit. One of these is a standard air-set cement supplied in dry form and applied when mixed with water for laying up firebrick, for cementing together fire clay shapes and for painting the surface of brick work. Another is a cement in the form of a liquid coating for applying to new brick work to seal the masonry and protect it from erosion, as in linings of furnaces. The third is a firebrick to which also has been given the name "standard."

Branch
Office
Representatives
of
The Iron Age

Chicago, 1507 Otis Building.....Gilbert L. Lacher
Pittsburgh, 1002 Park Building.....George F. Tegan
Cleveland, 535 Guardian Building.....F. L. Prentiss
Cincinnati, First National Bank Building.....J. E. McDonald
Boston, 425 Park Square Building.....Gerard Fraser
Washington, 536 Investment Building.....L. W. Moffett
San Francisco, 320 Market Street.....Charles Downes

Editorial

Advertising

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Cleveland, 535 Guardian Building.....Emerson Findley
Cincinnati, First National Bank Building.....Don G. Gardner
Boston, 425 Park Square Building.....H. E. Barr
Philadelphia, 1402 Widener Building.....Charles Lundberg
Buffalo, 833 Ellicott Square.....B. L. Herman
Detroit, 7328 Woodward Avenue.....A. L. Marsh
Hartford, Conn., P. O. Box 81.....D. C. Warren
Northern New Jersey, Elmwood Hotel, East Orange, N. J.....W. C. Sweetser
New York, 239 West Thirty-Ninth Street.....F. W. Schultz, C. L. Rice, E. Sinnock
San Francisco, 320 Market Street.....W. A. Douglass

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

Bars, Shapes and Plates		Per Lb.
Bars:		
Refined iron bars, base price.....	3.24c.	
Swedish charcoal iron bars, base.....	7.00c. to 7.25c.	
Soft steel bars, base price.....	3.24c.	
Hoops, base price.....	4.49c.	
Bands, base price.....	3.99c.	
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base.....	3.34c.	
Channels, angles and tees under 3 in. x ¼ in., base.....	3.24c.	
Steel plates, ¼ in. and heavier.....	3.34c.	

Merchant Steel		Per Lb.
Tire, 1½ x ½ in. and larger.....	3.20c.	
(Smooth finish, 1 to 2½ x ¼ in. and larger).....	3.55c.	
Toe-calk, ½ x ¾ in. and larger.....	4.20c.	
Cold-rolled strip, soft and quarter hard.....	7.00c.	
Open-hearth spring steel.....	4.50c. to 7.00c.	
Shafting and Screw Stock:		
Rounds.....	4.15c.	
Square, flats and hex.....	4.65c.	
Standard tool steel, base price.....	15.00c.	
Extra tool steel.....	18.00c.	
Special tool steel.....	23.00c.	
High-speed steel, 18 per cent tungsten.....	70c.	

Sheets		Per Lb.
Blue Annealed		
No. 10.....	3.89c.	
No. 12.....	3.94c.	
No. 14.....	3.99c.	
No. 16.....	4.09c.	

Box Annealed—Black		Per Lb.
	Soft Steel	Blued Stove
	C. R. One Pass	Pipe Sheet
	Per Lb.	Per Lb.
Nos. 18 to 20.....	4.45c. to 4.60c.	.....
Nos. 22 and 24.....	4.60c. to 4.75c.	5.25c.
No. 26.....	4.65c. to 4.80c.	5.30c.
No. 28*.....	4.75c. to 4.90c.	5.40c.
No. 30.....	4.85c. to 5.10c.	.....

Galvanized		Per Lb.
No. 14.....	4.85c. to 5.00c.	
No. 16.....	5.00c. to 5.15c.	
Nos. 18 and 20.....	5.15c. to 5.30c.	
Nos. 22 and 24.....	5.30c. to 5.45c.	
No. 26.....	5.45c. to 5.60c.	
No. 28*.....	5.75c. to 5.90c.	
No. 30.....	6.25c. to 6.40c.	

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe		Per Lb.
Standard Steel		
	Black Galv.	
½ in. Butt... 46 29		
¾ in. Butt... 51 37		
1-3 in. Butt... 53 39		
2½-6 in. Lap. 48 35		
7 & 8 in. Lap. 44 17		
11&12 in. Lap. 37 12		
Wrought Iron		
	Black Galv.	
½ in. Butt... 4 +19		
¾ in. Butt... 11 + 9		
1-1½ in. Butt. 14 + 6		
2 in. Lap.... 5 +14		
3-6 in. Lap... 11 + 6		
7-12 in. Lap.. 3 +16		

Bolts and Screws		Per Lb.
Machine bolts, cut thread, 45 and 10 per cent off list		
Carriage bolts, cut thread,		
35 to 35 and 10 per cent off list		
Coach screws, 45 and 10 per cent off list		
Wood screws, flat head iron,		
75, 20, 10 and 5 per cent off list		

Steel Wire		Per Lb.
BASE PRICE* ON NO. 9 GAGE AND COARSER		
Bright, basic.....	4.25c. to 4.50c.	
Annealed soft.....	4.50c. to 4.75c.	
Galvanized annealed.....	5.15c. to 5.40c.	
Coppered basic.....	5.15c. to 5.40c.	
Tinned soft Bessemer.....	6.15c. to 6.40c.	

*Regular extras for lighter gage.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE, under the general heading of "Iron and Steel Markets" and "Non-Ferrous Metals."

Brass Sheet, Rod, Tube and Wire		Per Lb.
BASE PRICE		
High brass sheet.....	19½c. to 20½c.	
High brass wire.....	20½c. to 21½c.	
Brass rods.....	17½c. to 18½c.	
Brass tube, brazed.....	27½c. to 28½c.	
Brass tube, seamless.....	24¼c. to 25¼c.	
Copper tube, seamless.....	25¼c. to 26¼c.	

Copper Sheets		Per Lb.
Sheet copper, hot rolled, 23c. to 24c. per lb. base.		
Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.		

Tin Plates		Per Lb.
Bright Tin		
Grade "AAA"	Grade "A"	
Charcoal 14x20	Charcoal 14x20	
IC.. \$11.25	\$8.85	
IX.. 12.85	10.85	
IXX.. 14.40	12.55	
IXXX.. 15.75	13.85	
IXXXX.. 17.00	15.05	
Coke—14 x 20		
80 lb..	\$6.15	\$5.90
90 lb..	6.30	6.05
100 lb..	6.45	6.20
IC..	6.65	6.40
IX..	7.85	7.60
IXX..	9.00	8.75
IXXX..	10.35	10.10
IXXXX..	11.35	11.10

Terne Plates		Per Lb.
8 lb. coating, 14 x 20		
100 lb.	\$7.00 to \$8.00	
IC.....	7.25 to 8.25	
IX.....	8.25 to 8.75	
Fire door stock.....	9.00 to 10.00	

Tin		Per Lb.
Straits, pig.....	61c.	
Bar.....	68c. to 70c.	

Copper		Per Lb.
Lake ingot.....	16¼c.	
Electrolytic.....	16½c.	
Casting.....	16 c.	

Spelter and Sheet Zinc		Per Lb.
Western spelter.....	9¼c.	
Sheet zinc, No. 9 base, casks.....	12c. open 12¼c.	

Lead and Solder*		Per Lb.
American pig lead.....	11c. to 11½c.	
Bar lead.....	15c.	
Solder, ½ and ½ guaranteed.....	42c.	
No. 1 solder.....	39¼c.	
Refined solder.....	33c.	

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal		Per Lb.
Best grade, per lb.....	75c. to 90c.	
Commercial grade, per lb.....	35c. to 50c.	
Grade D, per lb.....	25c. to 35c.	

Antimony		Per Lb.
Asiatic.....	20c. to 21c.	

Aluminum		Per Lb.
No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.....	36c.	

The market is quiet and sluggish. Dealers' buying prices are as follows:

		Cents Per Lb.
Copper, heavy crucible.....	12.50	
Copper, heavy wire.....	12.25	
Copper, light bottoms.....	10.25	
Brass, heavy.....	7.75	
Brass, light.....	6.50	
Heavy machine composition.....	9.50	
No. 1 yellow brass turnings.....	8.75	
No. 1 red brass or composition turnings.....	9.00	
Lead, heavy.....	8.00	
Lead, tea.....	6.50	
Zinc.....	4.50	
Cast aluminum.....	17.00	
Sheet aluminum.....	17.00	